



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

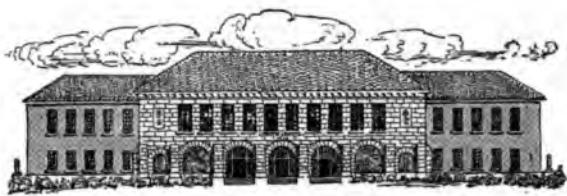
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

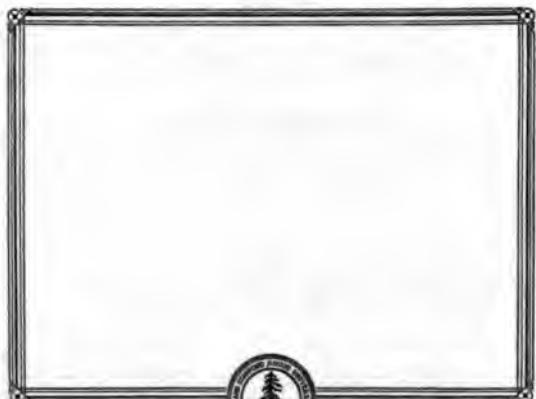
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



CUBBERLEY LIBRARY



STANFORD UNIVERSITY
LIBRARIES

STANFORD UNIVERSITY LIBRARIES · STANFORD

UNIVERSITY LIBRARIES · STANFORD UNIVERSITY

LIBRARIES LIBRARY

VERSITY LIBRARIES LIBRARY

RARIES LIBRARIES LIBRARY

NFORD UNIVERSITY LIBRARIES LIBRARY

STANFORD UNIVERSITY LIBRARIES LIBRARY

UNIVERSITY LIBRARIES LIBRARY

LIBRARIES LIBRARIES LIBRARY

UNIV

S.

RD

TY

NIV

LIB

STA

C





**PUBLICATIONS OF THE NATIONAL SOCIETY
FOR THE SCIENTIFIC STUDY OF
EDUCATION**

PUBLICATIONS
OF THE
NATIONAL SOCIETY FOR THE
SCIENTIFIC STUDY OF
EDUCATION

1902-1906

SUCCEEDING THE PUBLICATIONS OF THE NATIONAL
HERBART SOCIETY

EDITED BY
MANFRED J. HOLMES
SECRETARY OF THE SOCIETY.

CHICAGO
THE UNIVERSITY OF CHICAGO PRESS

1908
_B

1084 19

1084 19

GENERAL PREFACE

This volume contains the second series of *Yearbooks* published by the National Society for the Scientific Study of Education. The first series was issued under the title, *Yearbooks of the National Herbart Society*. Each issue of the *Yearbook* is a monograph, essentially complete in itself, on some important problem or phase of education. The nature of the topics treated and the scientific and literary care with which these monographs have been prepared give them a permanent value in educational literature. A continued demand from students of education and libraries for all the issues complete has led to this more compact and convenient form of assembling them in sets. Each set, or series, covers a five-year period.

The general table of contents for this volume gives only the titles of the respective monographs in the order in which they are found in the volume. Detailed analysis of contents will be found at the beginning of each monograph.

GENERAL TABLE OF CONTENTS

SOME PRINCIPLES IN THE TEACHING OF HISTORY

Lucy M. Salmon, Vassar College

THE PROGRESS OF GEOGRAPHY IN THE SCHOOLS

W. M. Davis, Harvard University

COURSE OF STUDY IN HISTORY IN THE COMMON SCHOOL

Emily J. Rice, The University of Chicago

Charles A. McMurry, Northern Illinois State Normal School

Isabel Lawrence, State Normal School, St. Cloud, Minn.

Edward C. Page, Northern Illinois State Normal School

Frank M. McMurry, Teachers College, Columbia University

THE RELATION OF THEORY AND PRACTICE IN EDUCATION

David Feltmeyer, Illinois State Normal University

Manfred J. Holmes, Illinois State Normal University

Levi Seeley, State Normal School, Trenton, N. J.

John A. H. Keith, State Normal School, Oshkosh, Wis.

THE RELATION OF THEORY AND PRACTICE IN THE EDUCATION OF TEACHERS

John Dewey, Columbia University

Sarah C. Brooks, Teachers Training School, Baltimore, Md.

F. M. McMurry; D. E. Smith; C. R. Richards; T. D. Wood.

C. H. Farnsworth, Teachers College, Columbia University

NATURE-STUDY—*Wilbur S. Jackman*, The University of Chicago

THE EDUCATION AND TRAINING OF SECONDARY TEACHERS

Edward C. Elliott, University of Wisconsin

Edwin G. Dexter, Commissioner of Education, Porto Rico

Manfred J. Holmes, Illinois State Normal University

SHORT CONTRIBUTIONS by Many Others

DISCUSSION: *George M. Forbes; Wilbur S. Jackman; Herman T. Lukens*

THE PLACE OF VOCATIONAL SUBJECTS IN THE HIGH-SCHOOL CURRICULUM

J. Stanley Brown, Township High School, Joliet, Ill.

Gilbert B. Morrison, McKinley High School, St. Louis, Mo.

Ellen H. Richards, Massachusetts Institute of Technology

DISCUSSION: *C. A. McMurry; C. B. Gilbert*

MEANING OF "SCIENTIFIC STUDY" IN EDUCATION—REPORTS BY ACTIVE MEMBERS.**THE TEACHING OF ENGLISH IN ELEMENTARY AND HIGH SCHOOLS**

George P. Brown, Editor "School and Home Education," Bloomington, Ill.

Emma C. Davis, Supervisor Primary Education, Cleveland, Ohio

DISCUSSION: WHAT IS "SCIENTIFIC" METHOD IN EDUCATION?

Edward L. Thorndike

THE CERTIFICATION OF TEACHERS—*Ellwood P. Cubberley*, Leland Stanford

Junior University

DISCUSSION: *John A. H. Keith*

THE FIRST YEARBOOK
OF THE
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

SOME PRINCIPLES IN THE TEACHING OF HISTORY

BY
LUCY M. SALMON
VASSAR COLLEGE

A PAPER PREPARED FOR DISCUSSION AT THE GENERAL MEETING OF THE SOCIETY
IN CONJUNCTION WITH THE MEETING OF THE DEPARTMENT OF
SUPERINTENDENCE AT CHICAGO, THURSDAY,
FEBRUARY 27, AT 2:00 P.M.

A SPECIAL MEETING FOR THE ACTIVE MEMBERS OF THE SOCIETY WILL BE
HELD FRIDAY, FEBRUARY 28, AT 9:30 A.M.

EDITED BY
CHARLES A. McMURRY
THE UNIVERSITY OF CHICAGO PRESS

COPYRIGHT, 1902, BY
MISS LUCY M. SALMON
VASSAR COLLEGE

PRINTED BY THE UNIVERSITY OF CHICAGO PRESS, CHICAGO

NOTICE

THE active members of the Society are specially requested to make a careful study of this paper on history before coming to the Chicago meetings.

It is suggested that active members institute small meetings at home for preliminary study of the paper.

The second part of the Yearbook will be published and sent out to members previous to the meeting of the National Educational Association at Minneapolis in July. An important paper on Geography, its scientific aspects, has been arranged for.

Any of the previous publications of the Herbart Society, or the bound volume of the five Yearbooks and Supplements can be obtained from the Secretary.

CHARLES A. McMURRY.

**THE UNIVERSITY OF CHICAGO PRESS,
Chicago, Ill.**

THE EXECUTIVE COMMITTEE
OF THE
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF
EDUCATION

NICHOLAS MURRY BUTLER, - Columbia College, New York, *President*
CHARLES DEGARMO, - - - Cornell University, N. Y.
WILLIAM L. BRYAN, - - University of Indiana, Bloomington, Ind.
DAVID FELMLEY, - - - State Normal University, Normal, Ill.
EDWARD R. SHAW, - - - New York University, New York
CHARLES A. McMURRY, - The University of Chicago Press, Chicago, Ill.,
Secretary-Treasurer

INTRODUCTORY NOTE.

The following suggestions in regard to some of the principles underlying the teaching of history are submitted to the members of the National Society for the Scientific Study of Education, less with the desire that these suggestions should be adopted and followed by them than with the hope that, through the consideration of them by that body, other and truer principles may be formulated for the help and guidance of teachers of history.

I have not hesitated in several instances to plagiarize from myself, and to incorporate in the paper several passages that have appeared elsewhere.

L. M. S.

POUGHKEEPSIE, N. Y.

January 9, 1902.

CONTENTS.

CHAPTER I.

THE RECORD AND THE RECORDER.

	PAGE
Definitions of history	11
Subject of the record	11
The recorders	12
The record	12
Distinction between the record and history	13
Sources of historical knowledge	13
Parallelisms between the literary and the monumental record	14
Necessity of recognizing interdependence of records	15

CHAPTER II.

THE HISTORIAN IN RELATION TO THE SELECTION AND USE OF MATERIAL.

Principles of the historian in selecting material	15
Prevalence of different methods at different times	15
Selection for dramatic purposes	15
Selection for political purposes	16
Interest centered in new material	16
Authority now the predominant factor in selection	16
Exclusive use of written record	16
Growing importance of monumental record	17
Necessity of making use of both records	17
Division of labor in writing history	18
Principles in the use of material	18
The literal historian	18
The dramatic historian	18
The scientific historian	18
The picturesque historian	19
The philosophical historian	19
The symbolic historian	19
Changes in the historian's point of view	20

CHAPTER III.

HISTORY OF HISTORY.

History of history	20
Development of mythology and biography	20
Chronicles of court life	21

History of nations	- - - - -	21
Comparative history	- - - - -	21
Disintegration of history	- - - - -	21
Rehabilitation of history	- - - - -	22
Relation of history to its component parts	- - - - -	23
Function of history	- - - - -	24

CHAPTER IV.

THE RELATION OF HISTORY TO OTHER SUBJECTS.

Relation of history to other subjects	- - - - -	24
Antecedents of history	- - - - -	25
"Satellites" of history	- - - - -	25
Auxiliary subjects	- - - - -	25
Allies of history	- - - - -	26
Offshoots of history	- - - - -	26
Interdependence of all subjects	- - - - -	26
Necessity of recognition of this by teacher	- - - - -	26
History and numismatics	- - - - -	27
History and geography	- - - - -	27
Unity of the curriculum	- - - - -	28

CHAPTER V.

OBJECT OF THE STUDY OF HISTORY.

Object of the study of history	- - - - -	31
Object of the historian	- - - - -	31
Object of reading history	- - - - -	32
Diversity of objects in studying history	- - - - -	33
Confusion of historical knowledge with history as means of training	- - - - -	33
History of history in the curriculum	- - - - -	33
Stages of mental development	- - - - -	34
Imaginative period	- - - - -	34
Period of enthusiasm	- - - - -	34
Desire for unity	- - - - -	34
Judgment predominant	- - - - -	35
Creative period	- - - - -	35
Necessity of adapting historical teaching to mental development	- - - - -	35
Illustrations of this principle	- - - - -	36

CHAPTER VI.

SELECTION OF MATERIAL.

Variation of objective point in teaching	- - - - -	39
Introduction of the child to history through mythology	- - - - -	39
Biography follows mythology	- - - - -	40

CONTENTS

9

The first complete circle of history	- - - - -	41
The second complete circle of history	- - - - -	42
Study of special periods	- - - - -	42
Independent research	- - - - -	43
Summary of selection of material	- - - - -	46
Principles underlying this selection	- - - - -	46

CHAPTER VII.

THE TEACHING OF HISTORY.

Changes in methods of teaching history	- - - - -	47
Early period of mechanical work	- - - - -	48
Reaction against it, and substitution of "laboratory" method	- - - - -	48
Principles underlying present theories	- - - - -	49
The teacher of history has followed the writer of history	- - - - -	49
Corresponding changes in both in regard to objective point	- - - - -	49
Present defects in teaching history	- - - - -	50
Lack of knowledge of history	- - - - -	50
Over-confidence in efficacy of method alone	- - - - -	50
Failure to perceive clearly end in view	- - - - -	51
Lack of adaptation of psychology to history	- - - - -	51
Object of teacher confused with object of historian	- - - - -	52
Desire to substitute philosophy for history	- - - - -	52
Desire for novelty	- - - - -	53
Necessity of co-operation if defects are to be overcome	- - - - -	54

CHAPTER VIII.

HISTORY IN THE PROGRAM.

Importance of agreement on principles	- - - - -	54
Latitude in details	- - - - -	54
Principles drawn from theory and observation	- - - - -	54
Material for Grades I and II	- - - - -	54
Material for Grades III and IV	- - - - -	54
Object to be gained	- - - - -	55
Material for Grade V	- - - - -	55
Grade VI	- - - - -	56
Grade VII	- - - - -	56
Grade VIII	- - - - -	56
Object of history work in grammar grades	- - - - -	56
Methods to be used	- - - - -	56
Reasons for recommendations made	- - - - -	56
History in Grades IX-XII	- - - - -	57
Object	- - - - -	57
Means	- - - - -	57

History of nations	- - - - -	21
Comparative history	- - - - -	21
Disintegration of history	- - - - -	21
Rehabilitation of history	- - - - -	22
Relation of history to its component parts	- - - - -	23
Function of history	- - - - -	24

CHAPTER IV.

THE RELATION OF HISTORY TO OTHER SUBJECTS.

Relation of history to other subjects	- - - - -	24
Antecedents of history	- - - - -	25
"Satellites" of history	- - - - -	25
Auxiliary subjects	- - - - -	25
Allies of history	- - - - -	26
Offshoots of history	- - - - -	26
Interdependence of all subjects	- - - - -	26
Necessity of recognition of this by teacher	- - - - -	26
History and numismatics	- - - - -	27
History and geography	- - - - -	27
Unity of the curriculum	- - - - -	28

CHAPTER V.

OBJECT OF THE STUDY OF HISTORY.

Object of the study of history	- - - - -	31
Object of the historian	- - - - -	31
Object of reading history	- - - - -	32
Diversity of objects in studying history	- - - - -	33
Confusion of historical knowledge with history as means of training	- - - - -	33
History of history in the curriculum	- - - - -	33
Stages of mental development	- - - - -	34
Imaginative period	- - - - -	34
Period of enthusiasm	- - - - -	34
Desire for unity	- - - - -	34
Judgment predominant	- - - - -	35
Creative period	- - - - -	35
Necessity of adapting historical teaching to mental development	- - - - -	35
Illustrations of this principle	- - - - -	36

CHAPTER VI.

SELECTION OF MATERIAL.

Variation of objective point in teaching	- - - - -	39
Introduction of the child to history through mythology	- - - - -	39
Biography follows mythology	- - - - -	40

CONTENTS**9**

The first complete circle of history	- - - - -	41
The second complete circle of history	- - - - -	42
Study of special periods	- - - - -	42
Independent research	- - - - -	43
Summary of selection of material	- - - - -	46
Principles underlying this selection	- - - - -	46

CHAPTER VII.**THE TEACHING OF HISTORY.**

Changes in methods of teaching history	- - - - -	47
Early period of mechanical work	- - - - -	48
Reaction against it, and substitution of "laboratory" method	- - - - -	48
Principles underlying present theories	- - - - -	49
The teacher of history has followed the writer of history	- - - - -	49
Corresponding changes in both in regard to objective point	- - - - -	49
Present defects in teaching history	- - - - -	50
Lack of knowledge of history	- - - - -	50
Over-confidence in efficacy of method alone	- - - - -	50
Failure to perceive clearly end in view	- - - - -	51
Lack of adaptation of psychology to history	- - - - -	51
Object of teacher confused with object of historian	- - - - -	52
Desire to substitute philosophy for history	- - - - -	52
Desire for novelty	- - - - -	53
Necessity of co-operation if defects are to be overcome	- - - - -	54

CHAPTER VIII.**HISTORY IN THE PROGRAM.**

Importance of agreement on principles	- - - - -	54
Latitude in details	- - - - -	54
Principles drawn from theory and observation	- - - - -	54
Material for Grades I and II	- - - - -	54
Material for Grades III and IV	- - - - -	54
Object to be gained	- - - - -	55
Material for Grade V	- - - - -	55
Grade VI	- - - - -	56
Grade VII	- - - - -	56
Grade VIII	- - - - -	56
Object of history work in grammar grades	- - - - -	56
Methods to be used	- - - - -	56
Reasons for recommendations made	- - - - -	56
History in Grades IX-XII	- - - - -	57
Object	- - - - -	57
Means	- - - - -	57

Reasons for recommendations	- - - - -	58
Differences between survey in the grammar grade and in the high school	- - - - -	58
Fundamental principles	- - - - -	58
Example of Germany	- - - - -	58
General statement of position	- - - - -	58

CHAPTER IX.**CONCLUSION.**

Necessity for clearness of thought	- - - - -	58
Sources as used by the historian and by the teacher	- - - - -	59
Changing ideals of the historian	- - - - -	59
Uncertainty as to object of teaching history	- - - - -	59
Past confusion and uncertainty not strange	- - - - -	59
Present possibilities	- - - - -	59
TITLES OF WORKS CITED	- - - - -	61

PROPOSED PLAN OF WORK	- - - - -	62
THEMES FOR DISCUSSION	- - - - -	67
PROCEEDINGS OF THE MEETING	- - - - -	70
CONSTITUTION	- - - - -	73
LIST OF ACTIVE MEMBERS	- - - - -	75

THE FIRST YEARBOOK

SOME PRINCIPLES IN THE TEACHING OF HISTORY.

I.

THE RECORD AND THE RECORDER.

What is history?

"A narrative, oral or written, of past events; a story."—*Century Dictionary*,

Innumerable definitions of history have been made from the standpoint of the historian, the poet, the *littérateur*, the philosopher,¹ but the one given may be accepted as a working definition that will fulfill all practical needs. It involves three factors:

Something to be narrated, or recorded.

A narrator, or recorder.

A narrative, or record.

The subject of the record.—This may be classed under three heads: Inorganic life—the record which is given by geology.

"History is humanity becoming and being conscious of itself."—*Droysen*.

"History is only the utilization of documents."—*Langlois and Seignobos*.

"History is the essence of innumerable biographies."—*Carlyle*,

"History is past politics; politics is present history."—*Freeman*.

"History is a voice forever sounding across the centuries the laws of right and wrong."—*Froude*.

"History is the cyclic poem written by Time upon the memories of men. The Past, like an inspired rhapsodist, fills the theater of everlasting generations with her harmony."—*Shelley*.

"Facts are not the dross of history, but the true metal, and the historian is a worker in that metal. He has nothing to do with practical politics, or with forecasts of the future."—*Birrell*.

"History is philosophy teaching by example."—*Bolingbroke*.

"Universal history is the unfolding of spiritual being in time, as Nature is the unfolding of the divine idea in space. History is progress in the consciousness of freedom."—*Hegel*.

Plant and animal life—the record of which is given by paleontology.

All human activities—the record of which is given by art, literature, and innumerable other agencies.

The recorders.—These may be classed as,

The unconscious and impersonal agents—nature, language, tradition.

The conscious agents—the artist, the annalist.

The record.—This may be classed according to the place where it has been made:

It has been left on the surface of the earth by unconscious physical agents. The study of this record gives us the subjects of geology and geography.

It has been left on the physical features of man. This record forms the basis of the science of anthropology.

It has been made by spoken and written language. The record thus left is the subject of the science of philology.

A record has been left by tradition, by folk lore, by institutions that have long since passed away except in remote places, and by existing forms and ceremonies, the original meaning of which has been long since forgotten. These are the records left by recorders acting unconsciously and collectively. The sciences treating of these various subjects have been as yet but imperfectly defined.

Records have been preserved through monuments. These are found in architecture, sculpture, casts, paintings, mosaics, coins, medals, seals, gems, cameos, heraldic emblems, armor, illuminated manuscripts, tapestries, rugs, wood carving, wood inlaying, and similar forms of art. These are the records made by the artist or by the artisan, acting often unconsciously and subordinating accuracy of historical fact to artistic presentation. Since the primary object of the artist has been artistic rather than historical, the record left by him has often been incidental to his main purpose. The term art may be used to cover all the subjects treated in this form of the record.

A record has been left in all forms of literature, as in poems, dramas, novels, and essays. In these, as in art, the record has in general been an unconscious one. It has been often not technically a record but rather an instantaneous photograph of manners and customs.

A record has again been made through laws, charters, and other

official documents—a record that in its turn is a photograph of the institutions of the period.

Finally, a written record has been preserved that gives consciously an unembellished statement of facts and events. This record may have been written with a tool on stone or metal—its interpretation is a work of epigraphy. It may have been written with a pen on parchment—the study of this record is made in paleography. It may have been printed from type—but no word as yet defines in precise terms this form of the record and distinguishes it from history on the one hand and from literature on the other.

It is thus necessary to distinguish between the record and the recorder, on the one hand, and history and the historian on the other hand. The record is the original portrayal of events that has been made quite as often unconsciously as consciously; it is the raw material from which the historian constructs history. The historian may in a sense be considered an interpreter or a translator, since he judges in regard to the authenticity of the record, compares different records, and fuses them all into an organic history. Technically any agent making a record may be called an historian; in this sense the impersonal agents, as nature and language, may be called historians. But the record to which the term history may be applied is that made by the historian who consciously gathers together from every source the primary records made by other agencies, and combines them into an orderly systematic whole. He makes of the various records that may have no organic relation to each other an organic history. History proper may thus be considered derived history as distinguished from the primary record.

The sources of historical knowledge, therefore, that the historian has at his command are physical, linguistic, social, monumental, and written. The historian uses all of these sources, but naturally finds the greater part of his material and that which bears most directly on his work, in the monumental and in the written record. These two classes of records often supplement each other; sometimes it is the monumental record alone that has survived, while again that has perished, and the historian must depend entirely on the written record. The historian is on the surest footing when he finds both written and monumental record. The parallelism and interconnection between the two may be illustrated by the following examples:

The Trojan War.—The literary record that has survived is found

in Homer and in Virgil. These poems give a series of brilliant pictures of life in a period long antedating that in which the poems were written. The records were handed down by tradition and by written evidence that has long since perished, and hence they cannot be considered an exact scientific account of the events of the period described.¹

The monumental record of the period is being brought to light through the uncovering of buried cities, palaces, temples, tombs, and other architectural remains of an early civilization, the literary records of which have for the most part perished.

The Battle of Salamis.—A literary record is given in the accounts of Aeschylus and of Herodotus.

The modern study of the topography of the scene of the battle modifies and corrects the theory of modern historians which is commonly supposed to be supported by the language of Herodotus, but is proved to be at variance with it.²

The Dacian War.—The literary record has entirely perished.

The monumental record is found in the bas-reliefs of Trajan's column.

The Norman Conquest.—The literary record is given by Ordericus Vitalis—the greater part of it written some years after the events described.

The monumental record is found in the Bayeux tapestries—contemporaneous accounts woven by Queen Matilda and her handmaidens.

Mediaeval Italy.—“We must study the Pisan Campo Santo with Dante in our hands.”³

It is evident from these illustrations, which could be multiplied indefinitely, that although “the development of literature and art does not indeed always proceed on the same lines or at the same pace,”⁴ yet each supplements and corrects the other. In the history of Greece, the literary and the monumental record supplement and corroborate each other; in the history of Rome, there are serious gaps in the literary record which often leaves the monumental record the main dependence;

¹For the sources used by Virgil, see NETTLESHIP, *Essays in Latin Literature*, Chap. VI, Pt. II.

²W. W. GOODWIN, “The Battle of Salamis,” in *Papers of the American School of Classical Studies at Athens*, I, 239–62.

³SIR CHARLES NEWTON, p. 25.

⁴ERNEST A. GARDNER, in D. C. HOGARTH, *Authority and Archaeology*, p. 266.

in mediæval history the two run parallel; in modern history the main dependence is on the printed record. The written record is perishable, hence the great dependence on monumental records for early history. But the written record is often the only one that has been consciously made and there has therefore been a tendency towards its almost exclusive use wherever it has been available.

The historian, if his work is to be of value, must have full knowledge of the interdependence of these various classes of records, and of the laws and principles that govern their use. The teacher of history, if his work is to be successful, must appreciate the difference between the primary records and the history derived from them and thus not confuse and confound the two either in his own mind or in his class-room work.

II.

THE HISTORIAN IN RELATION TO THE SELECTION AND USE OF MATERIAL.

It has been seen that the historian has at his command a vast amount of material from which to derive his own work. It is, in general, impossible, even in the preparation of a single monograph, to use all of the material available, and hence the question as to what principles are to be used in making a selection becomes an all-important one. Different methods have at different times prevailed.

In the first stages of writing history, the historian was able, since the field was limited, to collect his own material. The dramatic instinct was strong, while the scientific spirit had not been developed. He therefore used the material that served best this dramatic purpose and concerned himself with the picture he was to present rather than with too close an analysis of the materials of which it was composed. In the selection of these materials, the paramount question was, "Will the result be a vivid picture?"

In the second stage of writing history, the historian had come to perceive that history might serve certain distinct and often personal ends. The invention of printing had focused interest on the printed record and since the critical faculty was still undeveloped, every printed record was accepted at its face value to the neglect of every other form of testimony. Moreover since the end was personal rather than general

the selection of material was governed by the question, "Does this record serve my purpose?"

In the third stage of writing history, an abnormal interest was attached to the discovery of new material. The inadequacy of the printed record had come to be felt and the work of the historian proper was supplemented by that of the historical critic who overthrew the existing printed records but attached a peculiar sanctity to manuscripts, by the archæologist who claimed the entire field for himself and made history proper but a subdivision of Greek pottery and Roman walls, and by the physical historian who explained the battle of Gettysburg by the climatic differences between the Northern and the Southern states, and reduced the results of a presidential election to differences in geological strata. The freshness of the material used came to be of more moment than its authenticity; hence the question of the historian was, "Is this material new?"

In the fourth period the historian has appreciated that he must use both the printed and the manuscript record as well as the record of monuments, but not until each has been subjected to the most searching tests as regards its authenticity and the credibility of the sources on which it is based. Moreover, he realizes that "material monuments take a place, important or unimportant, in the historian's reconstruction of the past according as they can be interpreted well or ill by comparison of the monuments of letters."¹ The first question of the historian of today is, "Is the record true?"

This must be considered, however, only a general statement of the evolution of the attitude of the historian towards his material. Some early historians carefully examined their material on the points of genuineness and truthfulness, while some later historians have used their material to promote political ends. Niebuhr not only subjected the literary evidence used to a critical examination and analysis but he began that use of monumental evidence which was later developed by Böckh and his successors, while Froude, a half century later, has been called, "Indolence in a dozen volumes."²

The historian at first used exclusively the written record, but "the proportion between data derived from the ancient historians is continually shifting, and always shifting in one direction (that of existing fact)."³ That history needs to be constantly rewritten is due among

¹ HOGARTH, p. 14.

² Letters of John Richard Green, p. 239.

³ PERCY GARDNER, *New Chapters in Greek History*, p. 20.

other reasons not only to the growing recognition of the importance of monumental evidence but also to the constantly increasing amount of such evidence. Probably we have now in hand all of the most important literary evidence that has been preserved, but every turn of the spade brings to light fresh monumental evidence. When Greek history was written from the literary evidence alone, the Homeric poems were the last monument of historical activities on the confines between the unknown and the known European past. But the archæologist has at a bound put the milestone back a thousand years before the time of these. The paleontologist reconstructs the history of nature from the remains of fossil animal and vegetable life, and his history is imperfect and incomplete if he neglects either one of these two classes of records. The historian reconstructs the story of the human life of the past from all remaining records and he must use not alone the record left by letters, but that which has survived in the pottery, coins, weapons, tools, and every other evidence of a past life.

It must follow, therefore, that the historian whose work is to stand the tests demanded of it must in the selection of his literary material be governed by the principles and laws that have been deduced by critics and that are embodied in the science of historiography,¹ and that in the selection of monumental evidence he must depend on the similar laws that govern this class of materials.²

Thus it is seen that new principles governing the selection of material have from time to time been introduced, and that the most important of these have been the increased reliance placed on monumental evidence, and the subjection of both monumental and literary evidence to the most searching criticism. The task of the historian has therefore been increased immeasurably through these three means — the extraordinary development of interest attached to monumental evidence, the growing amount of literary evidence available, and the necessity of testing all evidence by the principles of scientific criticism.

¹"Historiography . . . is the sum of the results obtained by the critics who have hitherto studied ancient historical writings, such as annals, memoirs, chronicles, biographies, and so forth." — *Langlois and Seignobos*, p. 51.

²No one science as yet deals with the principles that govern all forms of monumental evidence. It is necessary in dealing with such material to study separately the laws of each branch of monumental evidence, as archæology, numismatics, heraldry, and all its other forms.

The task of the historian has thus become one of such overwhelming magnitude that it is impossible for him to perform it single handed and alone. Division of labor, however, makes it possible for him to depend on the archivist for the work of collecting, preserving, and testing the original record of letters ; on the archaeologist for judgment in regard to the value of the record of ancient monuments ; and on the writers of monographs for orderly, systematic arrangement of the materials covering a limited period in time or concerning only a very narrow subject. It is only by availing himself of this principle of division of labor that the historian is able to write any extended history and have it worthy of credence.

But the historian has not only been governed at different times by different principles in the selection of the records on which he must base his work—he has also used both literary and monumental records in such a manner as to produce a literal narration of fact, a dramatic representation of events, a scientific record, a vivid picture of the past, a philosophical discussion, or a symbolic representation.

The literal historian, who has based his work chiefly on the literary records, gives a plain, unadorned chronological survey of the period selected. He may be a mediaeval annalist, a Guicciardini, or a modern German historian “who has taken as his life work the history of Germany from 1525 to 1527”—the outcome is in every way the same. The literal historian who writes through monuments has preserved the same spirit in Trajan’s column, in the Vendome column, and in the July column in Paris, in the acres of historical paintings at Versailles illustrating the Napoleonic wars, and in the similar ones in Berlin recording the part taken by Prussia in the Franco-Prussian war.¹

The dramatic historian seizes upon effective incidents and throws them into high relief. The keynote of his work is action, and he concentrates on salient episodes all his force and vigor of description. Carlyle as the type of the dramatic historian finds in literature no less effective a field for his dramatic powers than does St. Gaudens in his memorial bronze in honor of Colonel Robert G. Shaw.

The scientific historian is guided by the principle of absolute accuracy, and is interested in the systematic presentation of facts in

¹ These are not to be regarded so much as primary records as they are histories written in the form of monuments.

their true relations, rather than in the effectiveness of the presentation. Stubbs and von Ranke, as the leaders of this school in England and in Germany, find their counterpart in Franz Hals and the Dutch artist historians, who have given us the corporation pieces that are the pride of Haarlem and The Hague.

The picturesque historian portrays the facts with vivid imagery, and presents a series of moving pictures that succeed each other on his canvas with brilliant and telling effect. What Motley has done for the Dutch Republic has been done by Carpaccio for the great city-republic of Venice in the series of pageant pictures that extol the glories of the civic power.

The philosophical historian deals with the broad bases of facts and with the underlying forces that determine events, rather than with the events themselves. Guizot in his *History of European Civilization*, assumes a knowledge on the part of his readers of the chief events in European history, and then interprets for them these events in the light of cause and effect. Kaulbach, in his great series of historical frescoes in the Berlin Museum, has portrayed on six canvases the history of the world, and in the selection of leading figures and in their relation to each other he has summed up the causes and results of great epochs in the world's history.

The symbolic historian makes use of types, and embodies qualities instead of representing the concrete. Naturally, the literary historian is less dependent on this method of using his material than is the historian who writes through art, but for the historian of present society its use is effective and telling. In his great series of symbolic novels, Turgenieff, as the social historian of modern Russia, has symbolized in his leading characters the spirit of unrest, of helplessness, of hope, of ambition, of dependence, of vagueness, and of unreality that characterize the life of Russia today. His work finds its counterpart in that of the artist historian who brings together on a single canvas, or in a single group, the abstract ideas, the controlling principles, the intangible spirit, that have given life to an epoch. The long struggle of Italy for independence from Austria, that lasted for more than half a century is symbolized in the posture of the four lions at the base of the statue erected in Ravenna in honor of those who gave their lives to win that independence. The irreconcilable differences between the nobility, the clergy, and the third estate are represented in the positions of the representatives of the three orders in the statue at

Grenoble commemorative of the beginnings of the French Revolution.¹ The frescoes of Ambrogio Lorenzetti in the city hall of Siena portrayed nearly six centuries ago in imaginative allegory the results of good and of bad government in city and in town.

It has thus been seen that from time to time the point of view of the historian has shifted—that while his objective point has at one time been that of telling a striking story, at another time it has been that of accomplishing political or personal ends, or again of presenting fresh material, or still again of telling the absolute truth as he has seen it, regardless of the consequences to himself, to his friends, or to his political, literary, or religious associations. It has also been seen that at all times it has been within the option of both the literary and of the monumental historian to combine his materials so as to present either a literal, dramatic, scientific, picturesque, philosophical, or symbolic representation of the past. There is a history of the historian's selection of material, and a history of the manner in which he has set forth this material.

III.

HISTORY OF HISTORY.

It has been seen that the historian has had at different times different objects in view in his selection of material, and that therefore he has himself had a history. This history of the historian may, in a sense, be considered the history of history on its subjective side, or the history of the manner in which the historian has used his material. On its objective side also history has had a history.

History dealt first with biography. It was a natural result of a primitive stage of society that interest should center around the individual. He might be called Jason, Romulus, Odin, or Arthur, but he was concrete, and the early races, having little interest in the abstract conceptions of state, institutions, or society, handed down by tradition the accounts of the events of his real or imaginary life, especially of those public acts so well performed as to merit for the actor the

¹The posture of the noble expresses contempt for the revolution and all that it signified; the priest with raised hand recognizes, but would avert, the coming disaster; the representative of the third estate, with outstretched hands from which the shackles have fallen, welcomes the future with all of pain or of sorrow that it may bring.

term hero. From these accounts mythology and biography, or the first history, was developed.

In time the individual gathered about himself a court, and the court developed its own life of pleasure and activity. Interest in the individual gradually widened and included all those immediately connected with him. The story might be one of a crusading expedition, or of a tournament at court, or of a contest between neighboring kings, but the scene of action was distinctly larger than before. Out of the biography of an individual the chronicle of a court had been developed.

The age of discovery widened the physical horizon of men, and as a result their activities were correspondingly enlarged. Interest was no longer centered exclusively in court life, for all classes of society shared in the new discoveries and in their results. In time it was realized that people, court, and king are equally parts of the body politic, and as a result the chronicles of court life developed into the history of nations considered as organic wholes.

As long as the interests of a nation were centered in itself, it looked on other nations as military or commercial rivals. But wider acquaintance brought toleration, and toleration was followed by a desire to learn what the experiences of others had been, and to profit by them. The writing of history came to have a more definite end, and the study of the past became less of a passing diversion and more of a serious effort to learn from others. The study of comparative history has followed that of individual nations.

At every stage in the development of history the horizon has been widened until it now embraces the world. From the quadrant of the circle or biography, interest extended to the hemi-circle or court life, then to the three-quadrants or the nation, until now the circle has been completed in the study of groups of nations, or society as a whole. Interest in the personal achievements of the heroes of an early age was merged in that of the larger groups surrounding them; this in turn developed into one centering about the impersonal institutions of a nation, and from the study of the institutions of one nation has come in its turn the comparative study of the institutions of different nations. The relation between the subject about which interest centers, and which becomes the subject of history, and the form that this history takes may be illustrated by the following simple classification :

Center of Interest.	Subject of History.	Form of History.
Single individuals,	Heroes,	Biography,
Groups of individuals,	Court life,	Annals,
People,	Nation,	History,
Peoples,	Society,	Comparative history.

It has been said that this may be illustrated by the development of the quadrant into the complete circle. With the completion of the circle, however, and the development within it of the history of special subjects, history broke down of its own weight. It was no longer possible to write "universal history," in the sense of writing a history at first hand of all the nations of the world in all their individual activities, and therefore special histories were written. Thus, at the very moment that the circle was complete, the process of disintegration began. Histories came to be called "political histories," "constitutional histories," or "histories of the people." Literature and art, religion and philosophy, science and mathematics, developed their own histories. Political science, economics, international law, all grew up as special subjects within a domain that had previously been called history. If this disintegrating process were to be continued indefinitely and history were thus to be resolved into its original elements, it must follow that when the process was complete history would disappear, and its place would be taken by histories of all the component parts of society. It is perhaps this result that Mr. Herbert Spencer sees when he says, "The only history that is of practical value is what may be called Descriptive Sociology," and that leads others to deny the existence, or at least the importance of history. Some have indeed seen the foreshadowing of this disappearance of history in the rapid rise of histories of the people, histories of the government of people, and other variants from the standard titles.

But while it is true that the point of view of the historian has changed during the process of evolution, and that now one thing and now another has seemed of paramount interest to him, it by no means follows that history has disappeared in the process. The principle of division of labor has been introduced, but division of the task does not annihilate the task itself.

The relation that history sustains to all the various subjects that have formed a part of itself may be illustrated by the comparison of history to the individual man made up of body, mind, and soul. The following simple classification will indicate how this comparison may be made :

Man	Material—Body	Bones . . .	Government . .	Political science
		Organs . . .	Production . .	Economics
		Arteries . . .	Commerce . .	Economics
		Muscles . . .	Manual labor . .	Economics
		Nerves . . .	Communication . .	Economics
		Flesh . . .	Masses . . .	Sociology
		Brain . . .	Professions . .	Literature
		Form and color	Art	Æsthetics
Immaterial . .	Mind			{ Psychology
				Philosophy
	Soul			{ Ethics
				Religion

From this classification and comparison it is evident that a study of politics gives the history of the social anatomy, that the study of economics is concerned with the material side of life, that the history of the masses of the people tends to lack form and substance, and the history of form and color emphasizes sentiment rather than strength. Histories of the people were an inevitable reaction from the chronicles of court gossip, but they were themselves open to the same criticism of being only special histories. Histories of art and of literature were inevitable, but they have never been substitutes for history proper. "Politics is the superficial struggle of human ambitions crossed occasionally, but rarely, by a sincere desire to do good. History must take account of politics, as of everything else, but let it remember that politics is in its very nature bold and encroaching, a part of that fierce struggle for power which is so unlovely."¹

History is not and can never be supplanted by one of the subjects that form part of it. Every organ of the body has its individual organism—the heart has its valves, the lungs their veins, the stomach its muscles—but the study of these does not supplant the study of the organism as a whole. A study of general physiology and anatomy is necessary before one can become a specialist, and the specialist must constantly revert to the general practitioner if he is to keep in mind the relation his own work sustains to that of his fellow specialists. In a similar way it is true that the historian of literature cannot understand his subject without a knowledge of the general historical forces that are behind it and that are working in connection with it. The economist

¹ EDWARD EGGLESTON, *Annual Report of the American Historical Association*, 1900, Vol. I, p. 40.

must reckon with politics ; the political scientist with literature ; æsthetics with psychology ; and philosophy with religion. It has thus become the function of history, not to magnify heroes into demi-gods, not to chronicle the idle gossip of courtiers, not to exalt one country at the expense of another, not to content itself with detached and isolated subjects, not to undertake *de novo* the study of the development of the world from its beginning to the present moment, but rather to utilize the work in other departments of knowledge, to combine these into new wholes, to show relationships, to keep a true perspective, to weld into an organic whole the story of the activities of mankind. It must follow that it is futile to ask, "Which is more profitable, the study of the history of England or that of Italy?" England gives the best illustration of political development, but we must go to Italy for the study of art, and to Germany for the study of philosophy. It is equally futile to ask, "Which is more important, the history of inventions or that of military campaigns?" Inventions, military campaigns, politics, art, and literature all play a part in that complex organism called society, and history must take each into account in its portrayal of human development. The part is not equal to the whole, but the whole is equal to the sum of all the parts. The historian must build the structure while the archivist lays the foundation, the writer of monographs collects the material, and the specialist adds particular features. The historian, like the poet, sees that

"All nations have their message from on high.
Each the messiah of some central thought,
For the fulfillment and delight of Man.
One has to teach that Labor is divine,
Another Freedom ; and another Mind ;
And all, that God is open-eyed and just,
The happy center and calm heart of all."

IV.

THE RELATION OF HISTORY TO OTHER SUBJECTS.

History does not occupy an isolated place ; it sustains an intimate relationship to every other branch of knowledge. Yet this relationship is by no means the same in every case since it is never either mechanical, arbitrary, or inorganic. What this is may be indicated by the classification of different subjects under the heads of the antecedents of

history, the "satellites" of history, the auxiliary subjects, the allies of history, and the offshoots or descendants of history.

The antecedents of history—geology and anthropology—give a necessary substratum of knowledge on which the historian must build. The historian is not and cannot be either a geologist or an anthropologist, and the time has long since passed when he could seriously be advised to become a master of either subject;¹ but the physical construction of any country is often a key to its history, and so history is indebted to the antecedent sciences for the basal facts on which its own story of the human past is developed.

The "satellites" of history, to borrow Mr. Freeman's term, though not his classification—chronology, statistics, numismatics, sphragistics, heraldry, genealogy—have no inherent value, but derive their importance from their connection with history. "They are studies whose results are most precious to the historian, but which, in themselves, apart from their use to the historian, seem not to rise above that kind of curious interest which may be called forth by an inquiry to which a man gives his mind."² History relies on the information gained through chronology, statistics, and kindred subjects for exactness, for accuracy, for elucidation of obscure points, yet these subjects have in and of themselves no meaning apart from their connection with history. They derive their importance as branches of knowledge from the light that history throws on them.

The subjects auxiliary to history—archæology, epigraphy, paleography, heuristics, diplomatics, bibliography, philology, and all language studies³—are those that may be called the working tools of history. MM. Langlois and Seignobos have indeed pointed out⁴ that there are no branches of knowledge that are auxiliary to historical research in general, or that are useful to all students irrespective of the particular part of history on which they are engaged, but the relation that archæology and epigraphy sustain to classical history is the same

¹ "The historian will clearly do his own regular work better for being master of them (geology and associated sciences)."—FREEMAN, *Methods*, p. 45.

² *Ibid.*, p. 49.

⁴ *Introduction*, pp. 52–53.

³ Bernheim makes a different classification, including in "Hülfswissenschaften" subjects like numismatics that have been classed above among the satellites of history, but it seems necessary to distinguish between those subjects that in and of themselves have a distinct place as helpers in the study of history and those whose chief or only interest depends upon their connection with history.

This does not mean that the teacher of history is to teach all facts lest some of the essential ones escape. One who attempts that plan may well be reminded of the words of John Morley, when he recalls how "the Greek poetess Corinna said to the youthful Pindar, when he had interwoven all the gods and goddesses in the Theban mythology into a single hymn, that we should sow with the hand and not with the sack. Corinna's monition to the singer is proper to the interpreter of historical truth: he should cull with the hand and not sweep in with the scythe."¹ It does not mean that the effort must be made to have the child live over again the experiences of the race. It does not mean that either the one teaching or the one taught is to become master of all the sciences in the curriculum. It does mean that in every way possible history is to be illustrated by every other subject in the curriculum and in its turn is to illustrate them.

How this is to be done it is equally impossible, inadvisable, and unnecessary to state at this time, except briefly through two illustrations drawn from the study of numismatics, and of geography.²

The historian has come to recognize the important part that coins play in the illustration and confirmation of history, and that "a minute knowledge of history is at once demanded for and produced by the study of Greek coins."³ The teacher of history in using the study of coins to illustrate his own work has at his disposal the various authoritative works on numismatics with their accompanying plates, collections of coins in museums, photographs of coins, the series of postal cards illustrating ancient Greek coins, and, best of all, the interest in collecting coins which with the boy is second only to that of collecting postage stamps. It is possible for the teacher, armed with these resources, to show how coins illustrate the development of Greek politics from the early period of the independence of the Greek cities when each city has its own separate coinage,⁴ through the period of political alliances when separate coinage was abandoned in favor of that of the alliance⁵

¹ *Critical Miscellanies*, I, 2-3.

³ PERCY GARDNER, *Greek Coins*, p. 62.

² Numismatics is selected as illustrating the group called "satellites" of history, and geography that of the allies of history.

⁴ MIONNET notes 1,500 towns that had their own coinage, and scores of others were added after the work was published (1807-37). Coins are extant of more than 750 Greek cities in Sicily, while at least fifteen cities in Acarnania alone had separate coinage. *Ibid.*, pp. 26, 27.

⁵ MR. PERCY GARDNER clearly show how it was no light thing for the cities to give up the types and monetary standards they had had and to adopt those of a

to that of the unification of Greece under Alexander and the consequent adoption of a universal Alexandrine coinage. In American history the phrase, "I don't care a continental," still perpetuates the memory of the financial impotence of the Continental Congress.

The military coinage adopted at various times gives important evidence concerning the conduct of military campaigns. The earliest Carthaginian coins were those struck in Sicily to pay the mercenary troops in the invasion of 410 B. C.¹ There was an Anglo-Gallic coinage of the time of the Hundred Years' War, while the Black Prince had coins with detached feathers on the field, commemorating his depluming the helmet of the King of Bohemia.² The reign of Charles I. can be exhibited graphically by means of coins. During the time of the Civil War rude pieces were struck off in haste without the necessary coining apparatus, and these are often the monuments of disaster or of triumph; in Oxford silver twenty-shilling pieces were coined from the plate given by the heads of colleges to be melted and coined by the Royalists.³

If political and military conditions can be thus strikingly illustrated by means of coins, it must be self-evident that the financial condition can be thus shown. The current expressions, "I don't care a sou—a rap—a soldo," illustrate the minute subdivisions of the monetary unit in the countries where heavy taxation goes hand in hand with poverty of resource. The absence of these small subdivisions and the scarcity of even the smallest of the subdivisions coined, as of cents in California, must indicate the opposite condition.

These few illustrations drawn from numismatics have been suggested to show the use that it is possible to make of that subject in illustrating history. It is impossible for the immature student to reconstruct history through a study of coins, but it is possible for the mature teacher to avail himself of the researches of the trained historical investigator, and thus to elucidate and to vivify to a class many important events in history otherwise difficult of comprehension.

The subject of geography presents many difficulties not only because of its vastness, but also through the indefiniteness of its limits.

league. Coins are extant showing the monetary alliances existing among the cities of the Chalcidian league, of the Archæan league, of the Atolian league, among the cities of southern Italy, in Asia Minor, and among the cities of the Asiatic coast.—*Greek Coins*, pp. 27-31.

¹HILL, *Greek and Roman Coins*, p. 97. ²HUMPHREYS, II, 440. ³HUMPHREYS, I, 5.

The great branches of physical, political, and commercial geography are each sufficiently comprehensive to be considered a subject by itself, yet each is so interwoven with the other that it is impossible to make any division between them. "History is not intelligible without geography,"¹ and this statement from one of the best authorities on the relation between the two subjects must be accepted as covering all the different phases of geography.

The dependence of history upon the physical character of a country is evident when it is seen to what extent these conditions have determined those on which history is based. The beginnings of nations have been influenced by the existence of broad fertile valleys, while very high or very broad mountain chains have, outside of America, decided national frontiers. The necessity for individual protection determined the sites of the hill fortress-towns of ancient Greece and of mediæval Italy, as protection again has led to the choice of sites partly encircled by water, as Durham, Venice, Bern and Constantinople; the necessity for national defense has developed the great modern fortress-towns of Grenoble and Belfort; commercial reasons have placed towns at the junction of two rivers, as Mainz, Coblenz, and Lyons, or near the mouths of rivers, as Philadelphia, New Orleans, and Havre.² Trade routes, military operations, terms of treaties have all been conditioned by geographical features.

Geographical nomenclature is in its turn a fruitful field for showing the relation of history and of geography, as is evident in the term "fossil history" that has been applied to it. Great erudition has been required to determine satisfactorily and conclusively the origin of large numbers of European geographical terms, but the problem in America is simpler than it has been in Europe and it is far simpler here today than it will be in the future. It is possible almost to reconstruct the early external history of America through the study of names. The Spaniards have left the traces of their explorations and discoveries in the names of saints and in names significant of the natural features of the country, and these are found all along the seacoast and the water courses of the southwest. The French discoverers in their turn have left along the great lakes and through the valleys of the St. Lawrence and the Mississippi the names of French explorers, occasion-

¹ H. B. GEORGE, *History and Geography*, p. 1.

² Mr. George has given an entire chapter to the location of towns and I am indebted to him for the illustration of Belfort.

ally of saints, more often those indicative of the physical conditions of the country. The English settlers introduced a new element in nomenclature that had been impossible for the Spanish and the French in view of the great extent of territory explored and consequent lack of permanence, and that was names showing the affection of the settlers for their native English towns—hence the duplication all along the Atlantic coast of the geographical names of England.*

After the separation of the colonies from England, dawning Americanism is seen in the names Columbus, Washington, Hamilton, Jefferson, and those of other statesmen and leaders. Later, the same spirit developed Websters, Clays, Grants, and Garfields. American history is thus stratified in its geographical names. The love of native home that led to the conferring of so many names of England on the Atlantic settlements was reproduced when the descendants of these settlers became in turn emigrants to the western country.* Adventurers have left their footprints in Fair Chance, Eureka and Oka (softened from O. K.). "Boomers" have left their impression on Paris, London, Mason City, Charles City, and Metropolis City. The hopes and aspirations of the comers are seen in Concord, Liberty, New Era, and Unionville. Vaulting ambition has sprinkled over central New York most of the classical names of Greece and ancient Italy while Sparta appears in Wisconsin and Hannibal in Missouri. A score of additional classifications of American names might be made all showing how history has left its impress on American geography.

If we turn again to Europe, we see how the development in methods of warfare has changed the entire system of the defense of towns. The mediæval city walls, encircling narrow crowded streets whose buildings were prophetic of the tall apartment houses of today, have given place to broad boulevards that are indicative of peace. Evolution in the site of towns has produced successively the Grecian acropolis, the Italian hill castle, the English manufacturing town and the American railroad center.

* It is interesting, however, to note that this apparently did not come until after the period reflecting court influence, as is seen in the names Virginia, Maryland, New Jersey. When the actual settlers grew in independence, they gave the names of their home towns.

* Jersey Shore, Pa., Salina, Kansas,—the frequent repetition of names like Oswego, Brooklyn, Rochester, all show the influence of inter-state migration, as Penn Yan and Beloit show the results of compromise between settlers from different sections or holding different views.

These are but suggestions of the innumerable ways in which history and geography each supplement and explain the other. The immediate relations between the two subjects are more obvious than is the case with numismatics and history, yet in this very apparent simplicity of relationship there lurks a danger. About no class of facts and conditions is it so easy to generalize from insufficient data as about those relating to geography.¹ The novice who would hesitate to formulate conclusions in regard to the connection between archæology and history, or heraldry and history, does not hesitate to draw sweeping deductions concerning the apparent mutual influence of geography and history. The teacher must be well equipped with a fund of geographical and historical knowledge, rather than familiar only with technical method, if he is to hold in check this too common tendency.

The philosopher has shown the unity of knowledge, the historian has proved the unity of history, the teacher must teach the unity of history and other subjects in the curriculum.

V.

OBJECT OF THE STUDY OF HISTORY.

The question is often asked, What is the object of history? The very ambiguity in the form of the question is a true reflection of the ambiguity in the mind of the questioner in regard to the nature and function of the subject. To accept, however, for the present the question in its vague form, the necessity must be clearly seen of differentiating at the outset the reading of history from the study of history, and the study of history from the writing of history. It is one thing to write history, it is quite another to read history, and still another to study history. Thus the object of the writer of history, of the reader of history, and of the student of history are all diverse and must not be confused.

To the question, What is the object of the historian in writing history? the reply may be made in the words of one who is himself a

¹One illustration of this is the frequent insistence on the idea that the sea and the mountains are the natural homes of liberty,—a statement repeatedly met with in the older text-books on history. Mr. George advances the ingenious theory that the statement owes its vitality to Wordsworth's sonnet. P. 74.

distinguished historian, "It is not patriotism, nor religion, nor art, but the attainment of truth that is and must be the historian's single aim."¹

To the question, What is the object of reading history? an answer may be given in the words of Mr. Percy Gardner: "One of the greatest benefits bestowed by the muse of history on her votaries is that she lifts them out of the ordinary dull routine of a monotonous life, and conveys them through bygone scenes and to distant countries; that she enlarges their ideas through the contemplation of states of civilization different from the present; that she widens their charity by laying out before them a vast panorama of forgotten beliefs and endeavours; that she softens their hearts with emotions of pity and admiration for persons who have lived and died; that she helps them to the goal of right action by mapping out the course whereby others have attained that goal."²

To the question, What is the object of the study of history? no categorical reply can be given. The object varies according to the varying stages of mental development. The object to be gained by the study of history is one thing with the child, it is something quite different with the high-school boy, and again different with the college student or mature scholar. At every stage of the educational process, the object varies since it must adapt itself to the mental development of the child or student.

Moreover, it must be borne in mind that history, like many other subjects, is in the curriculum for a double object—for the direct information that it gives and for its help in mental training. These two purposes are often confused, and varying reasons are assigned by as many varying persons to whom one side of the question may seem all-important. To one history is of help in political discussion, to another it affords subjects for polite conversation, to another it is studied to promote patriotism; one values it for its moral lessons, another for its opportunity of character study, and a third, for examples to be followed when similar conditions arise; one studies it because it is interesting, another prefers fact to fiction, while another finds it helpful in studying literature and art; one considers it useful in training the memory, another in training the judgment, and another in arousing interest, and a fourth in unifying the curriculum.

This confusion of the purpose to be served by the acquisition of historical knowledge and of the disciplinary end to be served in the

¹F. YORK POWELL in *Langlois and Seignobos*, p. xi.

²New Chapters, p. 23.

study of history is well illustrated by the history of history in the curriculum. Even the most cursory examination of this history will show the different ends that it has served at different times. At first Greek and Roman history was taught in college as an adjunct of the classics and hence the subject had an entirely subsidiary position. At the same time American history was taught in the ungraded schools and in the grammar grades of the graded schools, largely as a result of the belief that "everyone ought to know something about his own country." The object here was apparently to foster patriotism and particularly to magnify the deeds of the Colonists in the war of the Revolution. In seminaries and academies outlines of the world's history were taught, presumably to provide subjects for conversation. The field of history to be studied varied, not according to the mental development of the pupils of a school, but according to the nature of the school. The classical school taught classical history, the public school taught United States history, the boarding school taught so-called universal history.¹ History has now been accorded a more prominent and important place in the curriculum. This has resulted in part from the rapid development of both the school and the college curriculum and the consequent introduction of many new subjects, in part from the study of European systems of education, where history occupies an important position; in part from the rapid accession of citizens of foreign birth and the belief that their children should acquire at an early age a knowledge of the history and institutions of their adopted country.

But the confusion still remains between history considered objectively and subjectively. If the object of the writer of history must be differentiated from that of the reader of history, it is equally necessary to differentiate the use to be made of historical knowledge, or the subject-matter of history, from history as a study to be made use of in the curriculum as a means of mental education.

It is foreign to the purpose of this paper to discuss the uses of historical knowledge—they are as widely divergent as are the necessities of the individuals appealing to a knowledge of the past for personal or public, private or official reasons. But it is the function of a body of men discussing the scientific aspects of education to ask, "How can history be used in the curriculum as a means of mental education?"

¹ For a history of the teaching of history in this country, see H. B. ADAMS, *The Study of History*.

To answer the question, it is necessary to ask another—"What are the mental states and processes of the child, the boy, the young man, that must be kept in mind if history is successfully to be made a part of the curriculum?"

The first stage of mental development is the one usually called the imaginative period. It is at least a question whether this period has been correctly named—the world in which the child lives is to himself a very real one and is an imaginative one only from the standpoint of the mature person. But the term is here used in the usually accepted sense. The child, from his own point of view, lives in a real world—from the point of view of others, it is a world of the imagination.

The stage that follows that of the imagination is the one controlled by enthusiasms; it is the period of dreaming dreams and seeing visions, the time of ideals and of widening horizons. The unreal world of the imagination in which the child has lived has developed into a very real one with constantly widening boundaries. He is reaching out into the future, questioning his own relation to his environment, to his unknown future, and to his equally unknown past. His interest in the story of the past is a twofold one—in it he finds conditions and situations that may explain his own, and in it he finds ideals that may guide him in the future. But he is no longer satisfied as when a child with single, detached events and isolated characters. His heroes must also be men of ideals as well as deeds, they must have a large theater for their action, they must sustain a definite relationship to the world in which they lived and be leaders in it. His imagination is fired by the history of their deeds, and his zeal is quickened to imitate them. Honor, courage, enthusiasm on the part of the great men of the past find a responsive chord in the boy.

The third period that follows that of enthusiasms and the earlier one of the imagination may be called that of unification or integration. Imagination and enthusiasms have by no means passed away—rather they remain as the basis on which integration is developed. But the desire for unity, for relationships is developed, and with the accumulation of a multitude of facts comes the desire to find unity among them, to seek for guiding principles, for magnets which shall gather the isolated, unrelated facts about a common center.

The fourth period again gathers into itself the characteristics of the previous periods, but it is now the judgment that becomes the prevailing one. The young man is no longer satisfied with the surface

presentation of the events of the past, but he makes comparisons, finds analogies, seeks for the relations of cause and effect. The critical faculty holds in check the earlier enthusiasms, and the events of the past now appeal not so much to his enthusiasm as to his reason and judgment.

The fifth period is not always, perhaps even is seldom, reached by the student during his nominal school life. Indeed it may happen that it is never reached at all by those whose training has been incomplete or abortive. It is the period when the creative spirit is roused and the individual is no longer satisfied with accumulation, but is impelled by forces from within once more to reconstruct some part of the story of the past. He searches for new material, he combines accepted facts into new shapes, he finds himself one in the brotherhood of creators and producers.

What then is the object of the study of history on its educational side? The answer must be that it is to provide material that may aid in developing the faculties dominant at each stage of mental development. A corollary must follow. The material selected and the use made of the material must be adapted to the mental condition of the individual who is to be educated. To force the reconstruction of the past by one who has not yet reached the creative stage is to clothe the child in the garments of the man. To give the mature student a kaleidoscopic picture of the past as a substitute for an orderly sequence of events, the interpretation of which demands the exercise of reason and judgment, is to clothe the man in the garments of the child.

This is a general statement of the problem and its answers. To state the question in detail, the object of the study of history on its educational side is first to train the imagination, to use the phrase in its commonly accepted meaning, during the period that corresponds roughly to the primary grade; it is second, to cultivate enthusiasms during the period that corresponds to the grammar grade; it is third, to secure integration of facts and ideas during the high-school period; it is fourth, to train the judgment during the college course; it is fifth, to foster and minister to the creative spirit during the university and subsequent periods. Thus the object on its educational side varies with the age of the boy or young man, and at each stage it adapts itself to the mental equipment found. Imagination never disappears, but it is controlled and regulated, and during the creative period is of the greatest assistance in vivifying the past. The creative

spirit is in embryo form during the period when the imagination holds sway, but it develops with each stage until it becomes the ruling characteristic.

The object may be stated in still more concrete form. It is first to people the world in which the child lives with simple, concrete characters that have to the mind of the child neither time nor place relation. The individual has come within the horizon and interest centers in him. He has no knowledge of the state as an organism, no conception of the institution of the church, no comprehension of abstractions, but what is human and personal appeals to him. His imagination is vivid, but it cannot create, and therefore it can deal only with that of which it has already conceived. It is the human and the personal that appeals to him, and that which is without time relation that attracts. Achilles and Romulus, Odin and Alfred, Charlemagne and Napoleon, Washington and Standish are all fellow countrymen and contemporaries in that large world whose boundaries loom dimly before the vision of the child. The voyage of the Argonauts and the labors of Hercules, the founding of Rome and Horatius at the Bridge, the journey of Hiawatha and the search for an El Dorado are all real events in the shadowy world in which the child lives.

The object in the second stage of historical instruction is to give a time and place relation to these and similar characters and events, to minister to the enthusiasms of the boy by showing each in his true environment, to give him ideals by showing him what has been achieved, to help him reach out after the great world in which achievement and action have played a conspicuous part, to encourage the accumulation of large stores of information in regard to these heroes.

The object in the third period is to give unifying principles and thus it corresponds to the work of the artist in "composing" a picture.¹ It is to enable the boy to see not only unity in historical development but unity in all that he has to deal with—that mathematics and music are first cousins, that art and philosophy are related, and that the study of Sanskrit roots has made the world akin. Imagination and enthusiasm still have a place, but more emphasis must be

¹"The law of help is the fundamental law of composition because it is the law of organic relationship throughout the universe."—CHARLES H. MOORE, *Atlantic Monthly*, October, 1900.

Composition is "the help of everything in the picture by everything else."—JOHN RUSKIN, *Modern Painters*, p. 174.

put on the arrangement, classification, and relationship of facts. Xenophon in describing the approach of the hostile army says: "It was now the middle of the day and no enemy was yet to be seen; but in the afternoon there appeared a dust like a white cloud, which not long after spread itself like a darkness over the plain. When they drew nearer the brazen armor flashed and their ranks appeared."¹ Then the historian narrates how one by one the different divisions of the army came distinctly into view. Thus the mass of facts accumulated in the first years of the child's study take form and shape, and at the close of the boy's high-school course he should have, as the result of the work of accumulating, classifying, and seeing the relationship of facts, a clear and definite impression of the progress of historical events, not only in his own country, but more especially in the larger world of which his native land forms but a part. Still more, he should have had an introduction to the idea that knowledge is singular in fact as well as in form. He must see not only the relationships between the different parts of the story of the past, but he must have an appreciation of the relationship between history and literature, both classic and modern, of the community of aim between work in history and work in geography, and that politics and history are but different faces of the same shield. He must realize that every study in the school curriculum dovetails into every other study making from seemingly isolated parts a compact, organic whole.

The fourth period has for its object training in the selection and use of material, in the collation of the material gathered, and in the correct interpretation of it. This period in its turn holds in solution the characteristics of those that have preceded it—"the years that bring the philosophic mind will not bring, they must find, enthusiasm," says Birrell, but the critical attitude of mind is asserting itself, "how" and "why" are the insistent questions, reason and judgment have gained supremacy. "The faculty to be trained is the judgment," says Bishop Stubbs in his inaugural address as regius professor of modern history at Oxford University. "What we want to see is men applying to history and politics the same spirit in which wise men act in their discipline of themselves."² After seventeen years of experience in the professional chair he again repeats, "I still think that the aim of historical teaching is the training of the judgment to be exercised in the moral, social, and political work of life."³ It must follow that the

¹ *Anabasis*, I, 8.

² *Lectures*, pp. 17, 20.

³ *Ibid.*, p. 373.

young man is no longer contented with chronicles of past adventures and of court life, but his reason demands food, the larger problems of society and of institutions absorb his interests, and college courses must satisfy these interests.

In the fifth period the student enters into his inheritance and joins the goodly company of those who through investigation and production are attempting to advance the boundaries of knowledge. The creative power is the last faculty of the mind to be developed, indeed it sometimes lies dormant throughout life, but the germs of that desire "to make something" that are so evident in the child in his relation to material things manifest themselves very early in an intellectual way. The boy produces nothing of intrinsic value, as the child with a few tools and unskilled in their use produces nothing valuable in a material way, but in both cases there must be the same attempts, although both may be equally futile. This creative spirit is, however, largely held in check during the years when the boy, with insatiable desire for stories of adventure, with a capacity for hero worship that demands objects for admiration, with a groping after an intellectual protoplasm that shall give life to dead facts, with developing judgment that carefully balances the pros and cons of every question—has been traversing the road from primary school to university. But with the entrance on a university career the young man breaks aloof from past leaders and tries his own strength. The creative spirit has the mastery and by its exercise the sum total of human knowledge is enlarged.

What then is the object of the study of history? It is to train the mind through a recognition on the part of the teachers of history of the various stages of mental development, of the characteristic features of each development and of the necessity of adapting the material used to those varying developments. The starting point is the child with the same mental endowment he has in later life; the objective point is the mature student fully equipped for mature research, original investigation, and philosophical conclusions. In the child and in the mature student the power of accumulation and the creative power are in inverse relation to each other. In the child the power of accumulation is strongest, the creative power weakest; he stores up the material collected for him, but he adds nothing to the sum total of historical knowledge. The mature student has not lost the desire for the acquisition of facts, for facts must be the foundation on which he builds, but by the discovery of new sources and by new combinations of well-

known facts he no longer merely absorbs what has been collected, but he makes a permanent contribution to historical science.

It must follow that the teacher of history, whether the teacher in an elementary school or a university professor must take into account the mental equipment of those with whom he deals, and adapt his material and the methods of handling it to the conditions found.

VI.

SELECTION OF MATERIAL.

The attempt has been made to show that the objective point in the teaching of history varies according to the mental development of the pupil. It must follow that the principles adopted in the selection of material must conform to the same general plan. "Advanced work in history does not consist in studying larger books and more of them"; there must be a progressive development in the selection of material, and this selection must be made with reference to the mental condition of the one who uses it.

If this is conceded, the first question is, What should be the introduction of the child to the unknown past?

It has been found that the child lives in a world where the imagination holds sway—a very real world to him, but one peopled with fairies and hobgoblins, without time or place relations, where he lives somewhat apart from the everyday life by which he is surrounded. His mind craves stories, and stories of events having the characteristics of the unreal world in which he himself lives. It is thus the universal myths that appeal to him—the voyage of the Argonauts, the labors of Hercules, the siege of Troy, the wanderings of Ulysses, the founding of Rome, the journeys of Æneas, Arthur and the knights of the Round Table, Odin and the heroes of the North, and the story of Hiawatha—in all of these universal myths he finds friends and familiar scenes. The world of story is the world of his own dreams, and he is here at home with companions amid friendly scenes. While his introduction to the past must be through the suggestion of interests lying outside of himself, it must yet be through those diverging not too widely from them. That which is remote appeals most strongly to the imagination of the child; types rather than species arouse his interest. It is therefore the superhuman that at first appeals to him. It was not

without a deep basis of truth that the Greeks represented their heroes as of superhuman size. The converse of the same idea was afterward embodied in the saying, "A prophet is not without honor save in his own country," and again, in the more modern form, "No man is a hero to his valet." Rosenkranz rightly says that the best literature for children, from their seventh to their fourteenth year, "consists always of that which is honored by nations and the world at large." It was with this thought that Fénelon wrote his *Dialogues of the Dead*, and that Rousseau urged that the child's first book should be *Robinson Crusoe*. Thus Homer and Virgil, *Don Quixote* and *Gulliver, Robinson Crusoe*, and the *Arabian Nights* never grow old since they are the reproductions of the types universally recognized.

The material to be selected therefore for the first work in history during the period when the child's imagination is his predominant mental characteristic, or, to express it more truly, while the child is still in an experimental period, is from the realm of mythology rather than from history proper. It must come from the borderland between history, mythology, and literature. It represents not the world of today, but that world known to the early races either definitely or through vague tradition. It is the mythology of Greece and Rome with that of the nations only dimly known to them. But fragmentary and vague as is the early mythology, it is possible through it to give a fairly complete survey of the world's traditions. The child is unconscious that through these mythological tales he has thus become acquainted, in an imperfect way it is true, but still acquainted, with the traditional heroes of the early period, but he has stored up legends in regard to the early nations that in time will have for him a concrete existence. He has been given in a simple way an outline of the world's mythology. The following circle will show one way in which these mythological tales may be selected with this end in view.

But the child soon passes from the world of myths to the world of realities, and he demands "true stories." These stories, however, must be stories of what has come within his mental horizon. Interest for him as yet centers in the individual—he has no comprehension of the abstract conception of state, society or church, but he demands stories of individuals, and primarily stories of heroes. It is, however, the physical side of life, as regards nature and man, that appeals to him. It is thus physical rather than moral heroism that attracts him. If he draws any conclusion from the stories he hears, it is that wrong

is redressed and right maintained by physical prowess rather than by moral qualities. The heroes that appeal to his imagination and his growing enthusiasm are at first again those that represent universal types, but they must be "real" heroes. Achilles and Hector, Jason and Romulus, Odin and Arthur yield the place of interest to Lycurgus and Miltiades, Hannibal and the Gracchi, Alaric and Charlemagne, Alfred and William, Washington and Franklin. Yet these at first

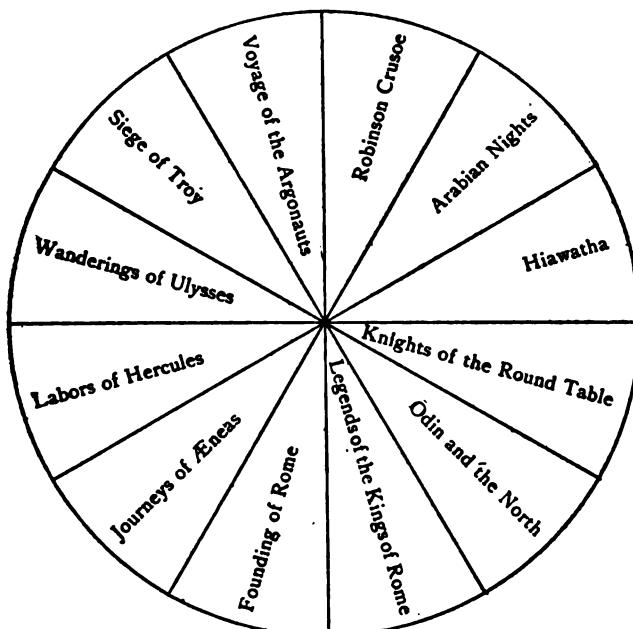


FIG. I.—MYTHOLOGY.

again have for the boy neither time nor place relation. They are types that belong to every age and to every nation, and thus they are the heroes of every child. All these and other heroes might exchange age, locality, and nationality, and yet they would represent the same general characteristics as before and appeal to the same love of heroes and heroism. They are types that belong to every age and to every nation, and therefore they are the personal friends of every child. Whether the hero belongs to one country or another does not concern him—the whole world of heroes is his by right of

eminent domain. Here again, as in the mythological tales, the horizon is widened, and it is possible to present a complete survey of the world's history in the form of biographical stories since the boy is interested in the great deeds, not only of the men of his own land, but of other countries as well.

The result of this selection of material may be illustrated by the following circle:

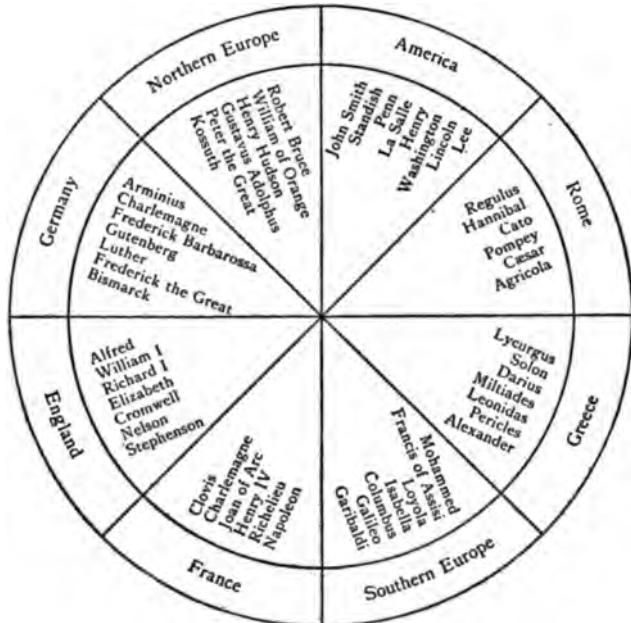


FIG. 2. BIOGRAPHY.

The first object is thus to minister to the imagination of the child and to awaken his dormant enthusiasm by placing before him individual characters representing general or national types. Through the selection of mythological and biographical material to accomplish this end, the boy has been given in an easy simple way a cross-cut section of the world's history. The circumference of his circle—a small one, but still a circle—is complete.

If the first principle to be followed in the selection of material is to make such a choice as will develop and train the imagination through the presentation of vivid pictures of the past, the second must be

to minister to the enthusiasm of the boy by providing a theater in which his heroes may play their parts—it is to present a general outline of historical events in which the lives of the individuals who have come within his knowledge may find their proper place. But in passing to the next larger circle the boy reassures himself in regard to what is familiar and goes from that by an easy transition to what is unknown. Thus the child who ascends a hill overlooking his native



FIG. 3. FIRST CIRCLE OF HISTORY.

village asks first, "Where is our house? Where is grandfather's house?" When these familiar places have been found, he takes an interest in this broader aspect of the view. Enthusiasm is the dominant characteristic of the boy, but with all this enthusiasm he is seeking a setting for the fragmentary and incomplete picture given. His mind is groping for some unifying principle, for a complete whole to be constructed from and for the separate parts of history already known. The second step must therefore be to pass from the narrow circle of which the individual was the center to the larger one in which the

individual becomes the representative of interests broader than his own. Sometimes these broader interests represent families, sometimes cities, sometimes localities. Solon and Miltiades stand for Athens, Lycurgus and Leonidas for Sparta, Romulus is a patrician, Virginia a plebeian, and the Gracchi represent the powerful family of Scipios. Charlemagne is the founder of the Carlovingians, William of Normandy a leader among the feudal barons. Columbus means Spain, and Captain John Smith is Virginia. This first general survey of history proper and the way it has been developed from the earlier circle of biography may be illustrated by circle on preceding page.

It is thus seen that the introduction to history comes through mythological tales and biographical stories that arouse the interest of the child, since the imagination is his controlling mental characteristic, and that through these he is given a picture of the past that includes within itself a fragmentary survey of the world's history. It has also been seen that enthusiasm is being roused and that in the second period this finds its proper field in the setting given the tales and the heroes of the first period through the outline given of the great events in the history of the world.

What then is the third step in the development of the boy's historical knowledge? It is to enlarge once more the circle and to place national interests above those of individuals or of cities and localities. The interests of Athens and Sparta are merged in those of the larger Greece represented by Demosthenes and Alexander. Pompey and Cæsar and Augustus are the representatives of a great power that controlled the world. Charlemagne is no longer merely a splendid chieftain, but he becomes the founder of a great empire. William of Normandy is not simply a feudal baron but he is the head of a great kingdom. Charles V. stands for the sovereignty exercised not only in Europe but claimed in the New World. Washington is a leader in the Revolution but far more than that—he is the founder of a new nation. Garibaldi is not alone a knight errant but he is an active agent in bringing about the great work of the unification of Italy. The circumference of the circle has again been enlarged and the boy has now a fairly well connected idea of the development of the world's history. His circle broadens until a fourth circumference has been reached. What this might naturally include is illustrated by the circle on opposite page.

But the desire for unity gives place in mental development to a

period when the mind seeks relationships, demands to know more of cause and effect, makes comparisons, and draws conclusions. As in each of the three previous periods of mental development, the object here is to provide material for the exercise of these characteristic qualities. Two complete surveys of the great events in the world's history have been made, indeed, three if the introductory circle of mythology and biography be considered one, a large amount of historical information

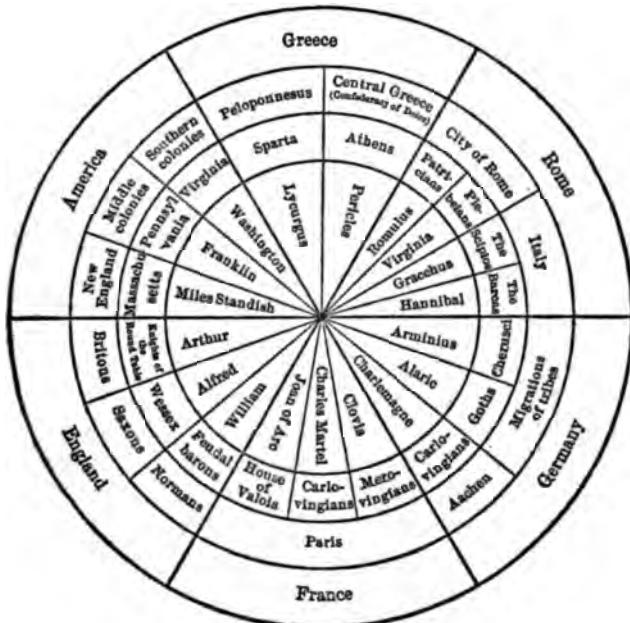


FIG. 4. SECOND CIRCLE OF HISTORY.

has been accumulated, and on this as a foundation special studies may well be made of limited periods where these relationships and comparisons may be more thoroughly studied. The judgment whose exercise has up to this time been largely held in suspense, now finds scope for its action and the college student, with a broad foundation of fact, with historical perspective, is in a position to make with interest, enthusiasm, and advantage a detailed study of these special periods that appeal to him.

The university student, who has become the trained investigator,

preempts his own field and reaps the reward of independent research.

The relations sustained between the mental characteristics of the boy, the object to be kept in view in training and developing these characteristics, and the material to be used in this development may be illustrated by the following table:

RELATION OF OBJECT AND MATERIAL.

AGE.	GRADE.	PREDOMINANT MENTAL TRAIT.	OBJECT.	MATERIAL.
6 7 8 9	Primary. I. II. III. IV.	Imagination.	To give vivid pictures.	Mythology, biography.
10 11 12 13	Grammar. V. VI. VII. VIII.	Enthusiasm.	To give ideals.	First circle of history.
14 15 16 17	High School. IX. X. XI. XII.	Integration.	To give unifying principles.	Second circle of history.
18 19 20 21	College. Freshman. Sophomore. Junior. Senior.	Judgment.	To study cause and effect.	Special periods.
22 +	University.	Creation.	To make some permanent contribution to historical knowledge.	Individual choice.

The principle at the basis of this arrangement of material and of its adaptation to the different grades of instruction is that of dividing the subject-matter of history into three or possibly four concentric circles. This division is based on the idea that the mental development of the child demands at different stages of its growth different

material with which to work, and that this material and this growth should be mutually related to each other. It involves going over practically the same ground several times, though in different ways. But this is of the same advantage to the pupil that it is to the instructor. The teacher gains new points of view with every repetition of a subject, and the pupil must do the same. Professor Henry S. Frieze, whose memory is cherished by all who came under his influence, once told his class reading Quintilian that it was the thirtieth time that he had read the author, but that he had found new beauties with each reading. The boy who takes history in "drei konzentrische Kreise" is gaining breadth of view and maturity, the subject is ripening in his mind, he is assimilating it and making it a part of himself, he is seeing in it new beauties and gaining new inspiration from it. He is in a sense going over the same ground each time, but he is ascending a spiral from the apex of which he gains a wider vision than he could have in any other way.

The principle of arrangement of material by concentric circles has been as yet but imperfectly carried out in this country, but it has elsewhere proved a feasible and successful method, and it presents an ideal toward which it is possible to work.

VII.

THE TEACHING OF HISTORY.

A careful observer of the changes that have taken place in the manner of teaching history within the past twenty-five years is able to distinguish three stages through which it has passed, or indeed in some localities is apparently still passing. The characteristic feature of the early stage may be indicated by three illustrations. In one of our great universities less than twenty years ago the expression was current among the students that English history was divided into periods of thirteen pages each. It is on record that one of the professors of Harvard University states that his first class-room exercise in history was prefaced by the kindly remark of the instructor: "The fleet of the Lacedemonians was now equal to that of the Athenians; proceed, sir." In 1893 eighty-two schools in New Haven county, Conn., were asked in regard to history instruction: "Is the memoriter method used?" Thirty-seven schools answered "Yes," six answered "In part," while

a teacher in a neighboring county apologetically explained that "he was not particular about the words of the text if the pupil gave words as good." In 1883 Professor, now President, G. Stanley Hall, stated that he was convinced that no subject so widely taught was, on the whole, taught so poorly as was history;¹ and the truth of his statement was borne out by the illustrations given by others writing at the same time.*

During this earliest and longest stage the text-book was taught as infallible and the chief educational purpose served by the teaching of history was that of training the verbal memory.

It was inevitable that earnest students and teachers should seek relief from this mechanical, artificial conception of history, and it was equally inevitable that when the reaction came it should be a violent one and in obedience to the physical law that action is equal to reaction. It is, therefore, not strange to find that during the following period high-school pupils were studying the science of history, that source books supplemented text-books, libraries became laboratories, and teachers of history developed into historical Cuviers endowed with the power of reconstructing the story of the past from the fragments of a song and the scattered remnants of an antique vase. Since the text-book was cast aside, the training of the verbal memory gave place to the training of the judgment as an educational object, with the inevitable result that demands were made on the immature minds of boys and girls that could not be met, and what should have been an educational process became a hothouse, forcing process.

A third period in the teaching of history has apparently been entered on. It is one characterized by three controlling ideas—that the text-book is indispensable in the teaching of history when used as a servant and not as a master; that history cannot be reconstructed in the classroom through the use of the sources by immature students or even by expert teachers; that an intelligent, well-trained teacher with a knowledge of history, with an enthusiastic love for it, with the truly historic mind which Frederick Harrison says "is the mind of profound sympathy with the great deeds and passionate hopes of men in the Past,"

¹ *Methods of Teaching History*, p. vii.

* "I have heard of a person, by courtesy called a teacher, who habitually kept his finger upon a line in the text-book before him, and limited his instruction to the work of correcting the trifling variations of the pupil from the phraseology of the text."—C. K. ADAMS, *ibid.*, p. 177.

and with a clear idea of what he is attempting to accomplish through the instruction he gives—that such a teacher is infinitely more potent in achieving successful results than is any method, however admirable in itself, without the master hand behind it.

These changes that have been going on in the class room are but the reflections of the somewhat similar ones through which the writing of history has passed. The latter have been already indicated, and they show that in every period the teacher of history has followed, though at a somewhat slower pace, in the footsteps of the investigator and writer. Every change in the method of writing history and in the conception of what its objective point should be is accompanied or followed by a parallel and corresponding change in the methods of teaching it. Every step in advance made by one necessitates a similar change on the part of the other. The historian who slavishly followed the printed record without inquiring into its credibility and used it to write a history glorifying his own political and military heroes and correspondingly villifying his enemies, has his counterpart in the teacher who follows the text with his finger while conducting a recitation. The historian who throws aside the printed record and reconstructs a history exclusively from folk-songs, from architectural remains, from coins, statuary, and heraldic emblems, finds his counterpart in the professor who a few years since proclaimed in the annual catalogue of a large and important university that no text-book in history was used, but that one was being prepared by the professor and advanced students in the historical laboratory of the university. The historian who intelligently and critically makes use of every source of information at his command and then tells the truth as he sees it, is the forerunner of the intelligent teacher who bases his work on a good text-book and supplements it by constant use of illustrative material drawn from literary and monumental sources.

It may thus be said that the writing of history and the teaching of history have experienced similar changes as regards the object in view and the method of attaining it, that with both the first stage of experience may be described as one where the centripetal force of printed record and of text-book kept historian and teacher in subjection; that during the second stage the centrifugal force of historical skepticism and of educational protest tended to drive both historian and teacher to the opposite extreme: that during the third period the approximate balancing of the two opposing tendencies has enabled both historian

and teacher to approach more nearly the perfect circle where criticism does not mean skepticism and where text-book and source find their proper equilibrium.

So much progress has indeed been made in the teaching of history that it may perhaps be felt that the battle for effective, successful work has already been won. But partial success means only the necessity of still more careful inquiry into the reasons why success has been partial rather than complete. It is thus necessary to ask, What are the defects frequently found in the present condition of history-teaching?

A most serious one is often the lack of a knowledge of history on the part of those expected to teach it. That a teacher should have some acquaintance with the subject he is to teach would seem to be axiomatic, yet the numberless cases on record where presumably this is not the case shows that this fundamental principle has not as yet been accepted either by the employers of teachers or by the teachers themselves.¹

A companion defect is the belief that some special method can be devised that will serve as a northwest passage to success in teaching history. This idea is fostered by nearly all the text-books of history in the market. Sometimes these are accompanied by manuals of instruction in the use of the text-book; often they contain chapters entitled "Suggestions to Teachers;" in several every chapter is followed by a list of questions to be used by the teacher and by lists of topics for special reports; others give minute instructions to the teachers concerning the preparation by a class of digests, abstracts, fluents, perspectives, and note-books; still others are accompanied by marginal outlines, numbered paragraphs, headings in heavy type, and a bewilderment of paraphernalia for substituting the knowledge of history possessed by the author for a knowledge presumably desired but obviously not enjoyed by the teacher. One text-book goes so far as to say that its distinguishing characteristic "is its capability of helping even the untrained teacher to do work according to the best methods." It must be evident that all so-called "suggestions to teachers" are but crutches by which incompetent teachers are enabled to hobble along

¹ The one class in history in a large school is taught by the teacher of gymnas-tics. In another important school the single class in history is assigned to a science teacher. In a high school having 1500 pupils the college preparatory history is in charge of a teacher whose entire preparation for it as regards work in history was one three-hour course running through a year. The above list can be added to indefinitely.

and the use of which keeps them perpetually crippled. All such devices work an incalculable injury to the teaching of history and but postpone rather than hasten the time when the subject will rank with others now successfully taught. As long as text-books are arranged for weaklings, just so long will weaklings persuade themselves that a correct method of teaching can be substituted for a knowledge of the subject to be taught.

An equally serious defect is the frequent failure on the part of teachers to see clearly the end in view and to adapt the means to the end. This is particularly noteworthy in that part of history teaching where an elementary knowledge of psychology could reasonably be assumed. How much this ignorance is to be deplored can be realized from a partial enumeration of some of the most frequent errors made as the result of it. The imagination is repressed through undue insistence in the first years of the child on technical accuracy of detail, with the result that in later years the boy has lost all power of vivifying the past, and that history has become a dull, deadening record of events all alike, to him, unimportant and uninteresting. Enthusiasm is quenched by premature insistence on the critical attitude, and by the presentation to children of so-called "true" pictures of those whom the world has revered as its heroes—pictures that present, however, not so much the truth as distorted and magnified versions of blemishes the world has gladly forgiven and forgotten for the sake of a great work accomplished and a noble life lived. At a time when the boy should be interested in synthesis, when he should be seeing the unity, not only between the parts of history, but between history and his other studies, he is taught to put the record of the past on a dissecting table, with the inevitable result that, by a process of analysis and dissection, all vital interest in a living past is crushed out. The judgment is prematurely forced, and demands made on it that cannot be met by the immature mind of the boy. The result is overconfidence in the wisdom of his own conclusions, a readiness to generalize from one particular, or from no particulars at all, and a warped, distorted conception of both past and present.¹ The creative

¹ Illustrations of this particular danger are numerous in the question set for entrance to college, e. g., "The effects of Alexander's conquests on civilization," "Give your estimate of Athenian democracy," "What is the philosophic basis of asceticism?" "Do you regard further annexation of territory to the United States desirable?" etc.

faculty is unduly stimulated, and boys are encouraged to attempt so-called "original" work at a time when their minds are naturally seeking to combine into an organic whole the facts already amassed, and when they are alert and anxious to increase their stores. The natural order is inverted, and special periods are studied before the boy has sufficient knowledge of the great events and developments in the world's history to profit by such study. He enlarges his knowledge by increasing the radius of a segment, not by developing the segment into a circle. His point of view remains stationary, and he lacks historical perspective. Thus the teacher of history, through a failure to apply to his work the simple fundamental laws of psychology, has no reasonable appreciation of the end he is to seek or of the means of reaching that end.

A fourth serious defect is the confusion of the object of the teacher of history with that of the writer of history. It is the function of the historian to collect historical material from every source, to classify and collate this material, and finally to interpret it. The teacher, on the other hand, must accept in his teaching the results of the investigations of historians. He must, indeed, be himself a creator, at least in an elementary way, if his teaching is to have vitality, but it does not follow that he must teach in the class room the results of his own investigations regardless of their appropriateness to the work of the class, or that he must force creation on the part of his pupils. In his relations with his class, it is rather the function of the teacher to act as a "middleman" between the historian and the pupil, to take the results of the historian's work and to elucidate them to the class, to see that the pupils are well grounded in the fundamentals that have been agreed on by the consensus of historical scholars before undertaking, with a class below college grade, the work either of criticism, of investigation, or of reconstruction. The teacher does indeed often deal with the same material as does the historian, but he uses it, not for the purpose of construction, but for that of elucidation. Until his pupils have acquired maturity of judgment, he must in his teaching accept at their face value the results of the investigations of the historian.

Still another danger in the teaching of history assumes the form of a desire to make history the vehicle for our philosophical conceptions of the past, present, and future. This desire to know and to teach the philosophy of history is a reaction against that spirit which

saw in the events of the past only an enumeration of facts, a skeleton without flesh and blood. This reaction has been inevitable, and in a sense is not to be regretted; but it has brought its own attending dangers. For the type of mind that has first grasped the idea that it is not all of history to teach Barnes's text-books memoriter from cover to cover, the transition is easy to the Hegelian conception that in Greece the mind was introspective; among the Romans the mind was resolved into generality, which makes mind itself universal; while in Christianity the mind first withdraws into pure introspection in communion with the universal; then follows the reconciliation, which is the introspective mind transforming the world (Diesterweg's summary). A disciple of this school, whose sublime indifference to the fact that the Norman Conquest came in the eleventh rather than in the first or the nineteenth century, had been the despair of his instructor, when asked what material he would select for a class in history in the grammar grades, replied promptly, "I would teach them the philosophy of history." It is this spirit that teaches in our high schools the philosophical, psychological, and physiological aspects of the French Revolution, that discusses history, as has been said of Mr. Carlyle's *Frederick the Great*, "in the past potential subjunctive," and all this without any sound, accurate knowledge of the facts on which the conclusions of others have been based.

Yet one more defect may be enumerated, and that is the one that comes from the adaptation of the old saying into "whatever is new, is right." This, again, is a reaction against certain misconceptions of the subject-matter of history. Since Mr. Green wrote his *Short History of the English People*, in protest against the previous exclusive consideration of military and political affairs, it has become the fashion to decry every history that does not treat of "the people." The protest has been well made; but there is danger that the teacher who welcomes emancipation from the drudgery that compelled the memorization of all the campaigns of the Revolutionary War will forget that

"Civlyzation doos git forrid
Sometimes upon a powder cart."

There is a temptation to overlook the fact that we are conscious of our political constitution, as our physical body, only when it is out of order, and that the study of preventive politics, like preventive medicine, has a proper place. The fault of all early writers and teachers of

history was not in the consideration, but in the exclusive consideration of military and political affairs. He errs in like degree who teaches that these phases of a nation's life can be ignored. He is wise who sees them in their proper relation to other phenomena of society.

If these, and other defects not enumerated, are to be eliminated from the instruction at present given in history, it can only be through such coöperation of all interested in the subject as will result in the contribution by each of the results of his own theories, knowledge, observation, and experience.

VIII.

HISTORY IN THE PROGRAM.

The fullness with which the principles underlying the selection of material have been elaborated in the previous chapters makes it unnecessary to go into great detail in suggesting an outline of the work to be recommended in history. It is, indeed, far more important to agree upon fundamentals than upon details, since the latter must be adapted more or less to individual tastes, interests, surroundings¹ and necessities. The following scheme of work, however, is suggested in the belief that it can be justified not only by appeal to educational experience, but that it can also be defended as practical inasmuch as it is in principle already carried out either wholly or in part in many schools, both in this country and in Europe.*

Grades I and II.—Stories from the *Iliad*, the *Odyssey*, the *Aeneid*, the *Sagas*, the *Nibelungen Lied*, stories of King Arthur, Odin, Hiawatha; *Robinson Crusoe*, *Arabian Nights*.

Grades III and IV.—Biographies of characters prominent in history: *Greece*: Lycurgus, Solon, Darius, Miltiades, Leonidas, Pericles, Socrates, Alexander, Demosthenes, Plutarch; *Rome*: Romulus, Virginia, Horatius, Cincinnatus, Regulus, Hannibal, Cato, Pompey, Cæsar, Agricola; *Germany*: Arminius, Alaric, Charlemagne, Henry

*One illustration of this may be seen in the study of American colonial history. It is obviously of interest in the Hudson river valley to study with some care the survivals of the Dutch occupation of that valley, as it is of equal interest in Louisiana to study the survivals there of French occupation. The underlying principle in each case is the same, but the exchange of details would lessen the interest on the part of those studying them.

*A part of this plan, with some variations, has already been published in the *Report of the Committee of Seven*.

IV., Frederick Barbarossa, Gutenberg, Charles V., Luther, Frederick the Great, Bismarck; *France*: Clovis, Charlemagne, Louis IX., Joan of Arc, Bayard, Palissy, Francis I., Henry IV., Richelieu, Napoleon; *England*: Alfred, William I., Richard I., Warwick, Elizabeth, Sidney, Raleigh, Cromwell, Pitt, Clive, Nelson, Stephenson, Gladstone; *Southern Europe*: Mohammed, Francis of Assisi, Loyola, Prince Henry, Isabella, Columbus, Lorenzo de Medici, Michel Angelo, Galileo, Garibaldi; *Northern Europe*: Robert Bruce, William of Orange, Henry Hudson, Gustavus Adolphus, Rembrandt, Peter the Great, Kossuth; *America*: John Smith, Miles Standish, William Penn, La Salle, Patrick Henry, Franklin, Washington, Daniel Boone, Lincoln, Robert Lee.

These names are suggested, not as a final selection to be rigorously adopted, but as indicating one way of arousing interest and of conveying historical information at the age when ideas of time and place relations are only imperfectly developed, but when interest in individuals is keen and active. The list may be changed *in toto*, but the principle still be retained.

The plan suggested for the first four grades implies that the object is to foster interest in the past and to stimulate the imagination by presenting vivid pictures of the early heroes of the world, that the method used is to be wholly the oral one,¹ that the stories are to be united with lessons given in language and in geography, that the selection of myths and stories should aim to give universal rather than particular notions, and that the teacher should have a sufficient acquaintance with history and literature to be able to decide wisely concerning the selection to be made.

Grade V.—Ancient history to 800 A. D. Simple narrative accounts and studies of the picturesque features of life in the valley of the Nile and that of the Tigris and Euphrates, with some account of the conquering expeditions of the Persians; the story of the invasions of Greece by Persia and of the relations of the great heroes of Greece to their own cities; the expeditions of Alexander and the absorption of Greece in Rome; the founding of Rome and its absorption of the Italian peninsula; the Punic wars and the republic under Julius Cæsar; Augustus and the Empire; Constantine and Christianity; the Germanic invasions; the rise of Mohammedanism; the work of Charlemagne.

¹ It is unfortunate that in the training of teachers greater attention should not be given to the art of story-telling.

Grade VI.—Mediæval history. The beginnings of Germany, France, Italy, and England; the Norman Conquest; Henry IV. and Hildebrand; the mediæval castle and pictures of life within and without; the Crusades; the Hundred Years' War; Constantinople and the Turks; inventions and discoveries.

Grade VII.—Modern history to the present time. Charles V. and his connection with Spain, Germany, and the Reformation; England under Henry VIII. and Elizabeth; Francis I., Charles IX. and the civil wars in France; Philip II. and the Dutch revolt; the Civil War in England; Cromwell and the Commonwealth; Louis XIV. and the struggle with Holland; the French Revolution; the American Revolution; the revolutions of 1830 and 1848; the German Empire, the French Republic, the Kingdom of Italy; England of today.

Grade VIII.—American history. The main outlines of American history.

The object to be sought in this first complete survey of the chief events in the history of Europe and of America is to afford material for stimulating the enthusiasms of the boy. If, to a certain extent, military operations occupy a place in the foreground, it is because it is physical, rather than moral, heroism that first appeals to him, that his first heroes have more often than otherwise been military heroes, and that in his first complete survey of the world's history he seeks a background for these heroes.

The method to be employed should be that of a simple text-book, supplemented by narration by the teacher, by illustrative material in the form of interesting contemporaneous narratives, and by photographs, slides, visits to museums, and other means of vivifying the past. At every possible point the work in history should strengthen and be strengthened by the work in language and in geography.

The reasons for recommending the preliminary survey of European history before taking up American history and before taking up the study of the same period in the high school are that the underlying principle is similar to one that is in successful operation in Germany—educational principles discovered by one group of instructors and successfully put into practice by them can be adapted to meet the needs of other groups of instructors without the necessity of rediscovery; that it gives a good basis for high-school work, since it follows the law "that one obtains knowledge by adding to the ideas which one already has, new ideas organically related to the old;" that the

substitution of a brief course in European history for a portion of the American history now taught will conduce to a better appreciation of the important facts in American history, and that, as a result, the pupil will have a better understanding of the history of America after one year of special study given to it than he now has after two years' study without this preliminary acquaintance with European history ; that it gives an outlook into the world of history and of literature to those who cannot complete a high-school course, and thus gives them resources within themselves that must be of value in their future lives ; that it would do something to make fruitful what is now too often a barren waste—the curriculum of the primary and the grammar grades ; that its adoption would do something to raise the educational and professional qualifications of teachers, since the knowledge required to carry it out would be more extensive than that demanded by the present curriculum ; that through it something would be done to unify the subjects in the curriculum, which is now too often vague and formless ; that since many schools in America now have a course similar to the one here advocated, it is a practical one.

Grade IX.—Ancient history to *circa* 800 A. D.

Grade X.—Mediæval and modern history from *circa* 800 A. D. to the present time.

Grade XI.—English history.

Grade XII.—American history, including civil government.

The object of the work in the high school should be to provide a unifying principle in the study of history, to widen the horizon of the boy, to add to and develop the knowledge that he already has.

The means employed should be a text-book covering the ground already covered in the grammar grade, but doing so in a more advanced manner ; also, parallel readings, special reports, and other means that may suggest themselves to the teacher as practicable and desirable methods of reaching the end sought. In considering the question of methods it must be added that two principles are never to be lost sight of,—first, that what the boy still needs is not philosophical generalization, but concrete facts and illustrations ;¹ and second, that as in the preceding grades the work in history is to be closely related to the other parts of the curriculum.

The selection of the material recommended involves a second complete survey of history, but a survey from a higher point. In his first

¹*Report of the Committee of Seven*, p. 57.

survey the boy has had little interest in problems of government, in the development of art and of literature, in the causes and results of great movements, but his interest in all these questions is now being awakened, and, at the same time, the survey in the grammar grade has given a foundation on which these new interests may be built up.

The specific way in which the material selected for the second survey may be differentiated from that of the first survey is indicated in the *Report of the Committee of Seven*.¹

The fundamental principle in these recommendations is that the best grasp of historical facts and the best training in "historical-mindedness" is that which is gained through the study of history in several concentric circles. In no country has the teaching of history been so successful as in Germany, and we may well look to her for an example in the selection and arrangement of historical material. In every German state the program is arranged on this principle, and this is in part an explanation of the great success of historical study in that country.² The same principles have been carried out with equal success in more than one school here.³

These suggestions have been founded on experience and observation, and they are believed to be in accord with the development of educational theory. The plan here presented is suggested, not as being ideal in itself, but as one that more nearly approximates that ideal than that often found in the public schools; it is suggested with full realization of the fact that it possibly cannot be at once adopted *in extenso* by a single school; it is recommended because of the belief that it is better to have an ideal toward which to work than to remain content with unsatisfactory conditions.

IX.

CONCLUSION.

The attempt has been made to set forth some of the essential and fundamental differences between the original records on which the historian bases his work and the history that has been derived from it.

¹Pp. 53-85. This part of the *Report* was written by other members of the committee, but it formulates my own views on the subjects touched upon.

²A more detailed account of history in the German schools is given in the *Report of the Committee of Seven*, Appendix III.

³Specific programs will be presented at the February meeting.

If this difference is clearly perceived, it is believed that much of the ambiguity and confusion that has attended the discussion of the use of the sources in the elementary and secondary grades will be cleared away; that the place of the sources in historical writing will be recognized, but that no attempt will be made to give them a factitious importance in the grades; that they will not be distorted from their necessary and legitimate uses by the historian; that they will not be converted into stilts for the use of the immature student.

The attempt has also been made to show the development in the ideals of the historian in regard to his selection of material, and that personal tastes and interests have largely determined the nature of the literary form in which the results of his investigations are given to others. The object of the historian has also shifted from the consideration of somewhat narrow interests to those that are world-wide, with the result that some have seen in this very widening of interests the disintegration of the subject itself. The result, however, has been not to remove history from the subjects to which students turn their attention, but to clarify existing ideas in regard to its relation to other branches of human knowledge.

But not only has confusion existed in regard to the mutual relations of the record and of the history derived from that record; not only has there been a failure to see clearly the relationship between history and other subjects—there has even been uncertainty as to the very object to be kept in mind in the teaching of history, an uncertainty largely growing out of the failure to consider the teaching of history as depending on psychological laws.

This confusion, uncertainty, and lack of clearness of thought has been far from strange—indeed, it is rather to be wondered at that so much progress has been already made. History is a new subject in the curriculum, and it has been difficult to determine whether it was to supplant one of the older subjects, whether it was to be an excrescence in the curriculum, or whether it was to take a natural place and give its friendly support to other branches. It must also be remembered that the very study of the science of education is in itself a new one, at least in America, as the existence of this society evidences, and that the place to be occupied by history could not be determined before a systematic study of educational psychology had been made.

It lies in the power of a body of men like those comprising the National Society for the Scientific Study of Education to bring about

great improvement in the teaching of history in this country through its insistence on the application of a rational study of psychology to the teaching of history, and an equal insistence on the necessity of a knowledge of history on the part of those who undertake to teach it. No study of method can take the place of a study of history. No method can take the place of a genuine love of history for history's own sake. No method, however successful it may have proved with one teacher, can be slavishly imitated by another. Every book on method is, in one sense, useless to the good teacher. Method can only be the seed that is planted on fertile soil. Unless the seed—the method—changes its form and develops into the plant it ceases to have life. Any method bears fruit only after it has been transformed in the mind of the living teacher, and has blossomed into new forms.

TITLES OF WORKS CITED.

No attempt has been made to give a bibliography of the subject, but for convenience the following list is added, giving the full titles of the works referred to in the text:

- ADAMS, HERBERT B. *The Study of History in American Colleges and Universities.* Washington, 1887.
- AMERICAN HISTORICAL ASSOCIATION—COMMITTEE OF SEVEN. *The Study of History in Schools.* New York, 1899.
- AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS. *Papers.*
- BERNHEIM, ERNST. *Lehrbuch der historischen Methode.* Leipzig, 1889.
- DIESTERWEG, G. *Methods of Teaching History.* Edited by G. Stanley Hall. Boston, 1883.
- EGGLESTON, EDWARD. Address in *Annual Report of the American Historical Association*, 1900. Washington, 1900.
- FREEMAN, EDWARD A. *Comparative Politics.* London, 1873.
— *The Methods of Historical Study.* London, 1886.
- GARDNER, PERCY. *New Chapters in Greek History.* London, 1892.
— *The Types of Greek Coins.* Cambridge, 1883.
- GEORGE, H. B. *The Relations of Geography and History.* Oxford, 1901.
- GREEN, JOHN RICHARD. *Letters.* New York, 1901.
- HALL, G. STANLEY, ed. *Methods of Teaching History.* Boston, 1883.
- HILL, G. F. *Handbook of Greek and Roman Coins.* London, 1899.
- HOGARTH, DAVID G., ed. *Authority and Archaeology.* London, 1899.
- HUMPHREYS, H. N. *The Coin Collector's Manual.* 2 vols. London, 1853.
- LANGLOIS, C. V., and SEIGNOBOS, C. *Introduction to the Study of History.* Translated by G. G. Berry. London, 1898.
- MORLEY, JOHN. *Critical Miscellanies.* 3 vols. London, 1886–88.
- NETTLESHIP, HENRY. *Lectures and Essays.* Oxford, 1885.
- NEWTON, SIR CHARLES. *Essays on Art and Archaeology.* London, 1880.
- STUBBS, WILLIAM. *Seventeen Lectures on the Study of Medieval and Modern History.* Oxford, 1886.

PROPOSED PLAN OF WORK
FOR
THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY
OF EDUCATION

THE scientific study of any subject implies an effort to get at its fundamental principles, and to make as complete and thorough investigation of its problems as specialists in that department can make. The principles upon which education may be safely based are still more or less in dispute, and the foundations of education as a science are still open to serious study and discussion. But especially when we leave the field of theoretical pedagogy, as based upon physiology, psychology, and ethics, and turn to the practical applications, many difficult problems still confront the teacher.

There are many organizations of teachers in clubs and associations, which are of great benefit in their helpfulness to teachers, but there is still need of an organization of educational specialists who will take up, one after another, the more difficult problems for the purpose of giving them complete investigation and rigid study.

Those college and university teachers who are working in departments of education are especially qualified by training, experience, and by the nature of their professional work to undertake this sort of study. A goodly number, also, of teachers in normal schools are working in a directly practical way upon the large educational problems, and their experience will be of great service. Many, also, of the superintendents in city school systems are deeply interested in the working out of great educational problems. Many of the college and university specialists in history, natural science, literature, political science, and sociology are better equipped than anyone else for scientific investigations along the line of educational work which touches their special subjects.

There are, therefore, both among men and women devoted to educational work, a large number who are deeply interested in promoting the study and expert investigation of important educational problems.

The general organization and framework of such a society is already provided for in this society for the Scientific Study of Teaching. The whole efficiency of this organization must rest in its executive committee, of which the president and secretary are members.

This executive committee of six members has it within its power to lay out a campaign into the fields of educational research and discussion which may prove of the highest value. In the first place it is its business to see that there be submitted to the society each year strong scientific papers on one or more leading questions. The expression "strong scientific papers" should be given a more pronounced meaning. Each paper which receives the approval of the executive committee as worthy of serious discussion at its sessions, should survey the whole subject completely from a strictly scientific point of view, commanding also its entire literature and such resources of experience as are necessary to a sound judgment. Narrow, one-sided discussions should not be accepted by the committee. Papers which come up to this high standard cannot be worked out in a few weeks. They can only be prepared by those who have had leisure for many-sided study and thought upon all phases of an educational problem. Age, experience, and ripe study by those who have had opportunity for specialization can alone furnish the best products.

It is not difficult to set up in theory such a standard of superior work as this, but the more serious difficulty for the executive committee is found in the effort to provide for a regular succession of such papers by urging qualified specialists and experts in different parts of the country to plan this kind of work two or three years ahead of its final publication. If such a thing were possible, it would be well to make a systematic distribution of the leading questions among trained and interested specialists, who could be picked out here and there in various institutions of the land.

In order to facilitate the work of the committee in this kind of distribution of topics, it seems advisable at the annual sessions to discuss the general question : "What are the leading topics demanding study and discussion, and who are the men and women best fitted by professional training and experience to give them a thorough and systematic treatment.

Such papers as we have in mind would be too long for publication in educational journals. They come much nearer those complete scientific monographs on special subjects which are sometimes published in pamphlet form in this country and in Europe by specialists, or as the result of special investigations. There is, however, a special advantage in bringing such superior monographs or treatises into the field of free and full discussion before a society of educational specialists.

The executive committee itself should consist of broad-minded specialists who represent the principal fields of educational thought. It will demand considerable time upon the part of the executive committee to give the papers presented a satisfactory review preparatory to publication in the yearbooks. It is to be desired that no papers be published merely upon the reputation of the author, but wholly upon account of their scientific worth.

In accordance with plans followed out in the old society, the yearbook will be published in two parts in time for the meeting of the Department of Superintendence, in February, and for the meeting of the National Educational Association in the summer. In order to accomplish the best results, it is desirable that the papers shall be published at least two months before the time of meeting for discussion. One of the most serious difficulties has been found in the effort to secure a careful study of the papers before the meeting for discussion. This certainly must be accomplished, if good results are to be achieved.

In order to secure this, only the active members of the society, who are expected to give the papers a thorough study, are allowed to participate in the discussion. Exception to this rule may be found in the case of those specialists, not members, whom the author of the paper desires especially to invite to a share in the discussion. It will be a good plan for those who have not read the papers with careful scrutiny to abstain from sharing in the discussions. There is no economy in a loose and incoherent discussion which is not based rigidly upon the points of view taken by the writer of the paper. Misunderstandings and irrelevant debate are the necessary result.

There should be at each of the half-year meetings one session of perhaps two hours at which only the active members are present, and only those of the active members take part in the discussion who have qualified themselves by thoughtful study of the paper. It may be found difficult in practice to apply this rule of exclusion, as free

opportunity must be offered to the active members, but it may be possible to establish this tradition of close limitation of discussion so firmly that individual members will have a conscience against violating it.

The best results, therefore, are not likely to be attained in large assemblages of several hundred teachers where elaborate speeches are to be made, but rather in informal round-table discussions, where truth may be sought by candid interchange of opinions, by question and answer, and by simple discussion, free from oratory.

It seems advisable also to hold a second meeting, for all the members of the society, where the whole subject is thrown open to popular discussion. Such has been the character heretofore of meetings of the Herbart Society, and they seem to have served an excellent purpose. These open meetings give an opportunity for many of the teachers to become interested in the work of the society, and to bring about a much wider distribution of its literature among thoughtful teachers.

If the plan above outlined of publishing the papers two months or more before the meeting and of providing for close and rigorous discussion proves feasible, it may be possible also for the active members in different parts of the country to gather a class of interested people together for the reading and discussion of the papers at home before coming to the national meeting. This is by no means impossible, and, if it could be brought about, would insure the right kind of study of the papers as a preparation for the general meeting.

An equally valuable plan can be followed by superintendents and teachers in educational departments of colleges and normal schools, if they will collect their teachers and friends on their return home from the national meeting for the reading, study, and discussion of the papers. This has already been done to a large extent in many parts of the country with the publications of the Herbart Society, and considerable assistance has been rendered in such studies by publishing at the end of the yearbook a list of references and a course of readings along the line of important topics. A large number of local clubs were organized in different parts of the country, and accomplished in this way excellent study work. This plan might be followed out with advantage in the future work of the society, and still more complete lists of references on important topics be furnished in the yearbook for the purpose of encouraging this kind of study.

The careful discussions at the half-yearly meetings of the society

are likely to give a broader and more critical view of the subject than the paper itself. It seems desirable that the substance of these discussions should be worked over by the secretary of the society, published, and sent out, as soon as feasible, to all the members as a supplement to the original papers. In some cases members may wish to put their discussion or criticism into complete form as a contribution to the general discussion, and these, if approved by the secretary, could be incorporated into the supplements. This plan of publishing a supplement containing the discussions of the papers was carried out at several meetings of the Herbart Society, and proved an interesting and satisfactory addition to the yearbooks.

In the discussion of an important topic which involves various interesting and unsolved difficulties, it may be necessary to provide for a series of papers running through two or more of the yearbooks, so as to bring the entire treatment into a complete form and provide that the whole subject be properly canvassed in the discussion. There are indeed a good many subjects of pressing interest to the schoolmaster which cannot be treated in a single paper, such for example, as the social function of the school, the relation of technical education to the common school, and others.

It is much to be desired that the author of any given paper shall be present at the meeting and participate in its discussion. It has been difficult heretofore in many cases to secure this result, and it may be well for the society to pay the expenses of the author, made necessary by attendance upon the meeting, so as to secure his presence. At least this proposition may be worthy of consideration by the society.

In order to begin the sifting-out process by which the leading topics deserving discussion may be brought to mind and clearly defined, a list of suggested topics is appended. The members to whom this paper is sent are requested to add other topics to the list and to suggest criticisms of the formulation of those already stated. Those having such suggestions of topics or criticisms are requested to send them promptly to the secretary, C. A. McMurry, De Kalb, Illinois. If it seems desirable to those most interested, this whole paper with its series of topics appended, will be published in the forthcoming yearbook of the reorganized society. It may seem worth while to give this proposed plan a careful discussion and criticism at our next meeting in Chicago, February 26, 27, and 28.

THEMES FOR DISCUSSION

ELEMENTARY SCHOOL PROBLEMS.

1. The proper organic relation of the kindergarten to the primary school.
2. A plan for organizing into a connected and coherent series the constructive exercises of the kindergarten and primary school, and the manual training and domestic science of intermediate and grammar grades.
3. The principles and plan of a general course in elementary science throughout the grades of the common school.
4. How are the social and industrial life of our time to find fit incorporation into the school life and studies?
5. The function and plan of the course of study in drawing and its relation to other work of the common school.
6. In what studies and grades is an oral method of instruction desirable in the common schools.
7. What can the common school do to promote in children an appreciation of good books and a proper use of libraries?
8. The problem of teaching good English and grammar in the public schools.
9. What is the function of fine art as revealed in literature, painting, sculpture, architecture and music in the common school?
10. How can the complexity of the modern school course be reduced to simplicity so as to preserve a strong discipline and avoid superficiality?
11. How secure the proper balance between intellectual and motor powers?
12. How can city children get the best educational advantages of play?
13. What form of compulsory school law succeeds best in American communities?

HIGH SCHOOLS.

1. What standard courses should the public high school in cities furnish?
2. What should be the relation of the courses of study in the high school to technological and industrial schools, to normal schools, to professional schools and universities?
3. To what extent should special training for special callings be provided in the high school?
4. What pedagogical training is needed by teachers in secondary schools?
5. Should the elements of high-school work in languages, mathematics and natural science be taught in the upper grades of the elementary schools?
6. Upon what principles should election of studies be determined in the high school?

7. How reconcile educational ideals of culture, morality, mental discipline and utility in the high school?
8. In what order should the high school teach the natural sciences?
9. To what extent should the laboratory be used in the high school?
10. Shall the high-school student study few or many subjects at one time?
11. Relation of secondary-school science to nature work in the grades.

NORMAL SCHOOLS.

1. To what extent can a standard professional course for normal schools be determined?
2. What are the faults and merits of psychological study in normal schools?
3. Should method of instruction be taught as a separate branch of study or only in connection with the teaching of arithmetic, history, etc.?
4. In what relation should the teachers of regular subjects stand to the practice department in normal schools?
5. How should the practice department of a normal school be conducted?

UNIVERSITIES AND COLLEGES.

1. What are the functions of a professor of pedagogy at a university?
2. What is the value of the history of education as taught in universities?
3. What are the purposes and values of a psychological laboratory at a university?
4. To what extent has modern child-study determined scientifically, the distinctive periods of physical and mental growth in children?
5. What correspondences have been established by historical and scientific investigations between race development and individual development?
6. What are the merits and faults of a lecture method at universities?
7. What value has the history of philosophy for teachers?
8. Is a practice school necessary in the pedagogical department of a university?

SUPERVISION.

1. What system of tests may be best applied to secure well qualified teachers in cities?
2. What is the best system of supervision of grade teachers, by special supervisors, principals, district superintendents, circular directions, from the office, etc.?
3. How can teachers meetings be made most effective for the improvement of teachers?
4. What are the faults and merits of a full and detailed course of study?
5. From what sources do superintendents get the best qualified teachers?

6. How may the individuality and freedom of the grade teacher be best preserved under a good system of supervision?
7. The consolidation of rural schools, its difficulties and advantages.
8. What is the best system of supplying children with text-books in the common schools?
9. Plans of grading and promotion.
10. How to deal with truants.
11. To what extent should the withdrawal of children in intermediate and grammar grades influence the course of study and method of teaching?
12. Compulsory education by the state.

PROCEEDINGS
OF THE
MEETING FOR THE REORGANIZATION OF THE NATIONAL
HERBART SOCIETY.

AT THE AUDITORIUM HOTEL, CHICAGO, THURSDAY EVENING,
FEBRUARY 28, 1901.

The meeting was called to order by Professor Charles De Garmo, in accordance with the circular notice sent out by a committee of the old society. Professor De Garmo was elected chairman of the meeting and Charles A. McMurry secretary.

A statement was made by the secretary in regard to the purpose of the meeting, namely, the reorganization of the old society under a different name and with a somewhat modified purpose. There was considerable general discussion of a suitable name, and various propositions were made. The name finally agreed upon was *The National Society for the Scientific Study of Education*. A constitution was then adopted by vote of those members present and wishing to be regarded as members of the reorganized society.

After the adoption of the constitution and in accordance with its provisions, an election of officers was held as follows: for president, Nicholas Murray Butler; secretary-treasurer, Charles A. McMurry. Four additional members of the executive committee were elected, as follows: Charles De Garmo, William L. Bryan, David Felmley, and Edward R. Shaw.

FINANCIAL STATEMENT.

A financial report of the condition of the National Herbart Society was made by the secretary, showing that all the bills of the old society for printing, publications, and other expenses had been met and paid, and that a considerable stock of the old yearbooks and supplements was still on hand. This financial statement was accepted and approved by a vote of the society. It was voted that the secretary of the National

Herbart Society should be allowed from the future sale of the yearbooks \$200, partly in payment of expenses incurred, and partly for services rendered. A motion was also carried that the secretary of the reorganized society should be allowed \$50 for clerical help during the ensuing year.

GENERAL PLAN AND PURPOSE OF THE SOCIETY.

A few of the leading purposes of this society as reorganized may be briefly stated as follows:

1. To secure strong original papers by leading specialists in education upon paramount topics which demand thorough investigation and study.

2. It shall be the special province of the executive committee to set a number of specialists at work upon important topics, so that thoroughly complete and masterly papers may be in readiness from time to time for publication in the yearbooks and for discussion at the meetings of the society.

3. The yearbooks of the society containing these papers shall be sent out to the active members and others interested several weeks before the meeting, for discussion, so that they may be read and carefully studied before the time set for discussion.

4. Only those active members who have made an exhaustive study of the papers are expected to take part in the discussion.

5. Reports of these discussions may be printed where it seems advisable.

A BOUND VOLUME OF THE YEARBOOKS OF THE NATIONAL HERBART SOCIETY.

The five yearbooks and corresponding supplements of the National Herbart Society from 1895 to 1901 have been well bound in a single volume, which will be sent to any address for \$5. This volume of the yearbooks of the National Herbart Society has been in much demand for use in public and private libraries. In order to make this volume complete for all the publications of the society, three of the supplements were reprinted. The yearbook and supplement for any one year may be obtained from the secretary at the rate of \$1 for each year's publications.

NEXT REGULAR MEETING.

The next regular meeting of the society will be held at Chicago in conjunction with the Department of Superintendence, February 25, 26,

and 27, 1902. A yearbook will be sent to active members and to others who desire it in the latter part of January, containing the papers for discussion. Those associate members who desire copies of this yearbook should send in their names to the secretary, C. A. McMurry, University of Chicago, with the fee of \$1. All persons desiring it are eligible to associate membership.

The principal paper in the forthcoming yearbook is on "History in the Schools," by Miss Lucy M. Salmon, of Vassar College. The general meeting for its discussion will be held Thursday, February 27, at 2 P. M. A special meeting for the active members of the society will be held Friday, February 28, at 9:30 A. M., at the Auditorium Hotel, Chicago.

CONSTITUTION
OF
THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY
OF EDUCATION.
[REORGANIZED NATIONAL HERBART SOCIETY.]

ARTICLE I.—ITS OBJECT.

The name suggests the general purpose of the society. It contemplates a serious, continuous, intensive study of educational problems. It stands for no particular creed or propaganda. In aim and spirit and method it seeks to be scientific.

ARTICLE II.—PLAN OF ORGANIZATION.

SECTION 1. *Members.*—(1) The society consists of active and associate members.

(2) Active Members. The active membership shall, for the present, be limited to one hundred. Only active members may take part in the discussions.

(3) The chief qualification for active membership shall be the possession of time, ability, and inclination to undertake a serious scientific study of educational problems. A fee of three dollars per year for each active member will be charged.

(4) Vacancies, when occurring in the active body, shall be filled by election at the first meeting.

(5) Associate Members. Anyone may become an associate member by paying a yearly fee of one dollar. Such members shall be entitled to receive the publications of the society and to attend its public meetings.

SEC. 2. *Officers and Committees.*—The officers of the society shall consist of a president, a secretary-treasurer, and executive committee, who shall be elected yearly at the winter session of the society. The executive committee shall consist of the president, the secretary, the treasurer, and four other active members of the society, of whom two are to be elected each year at the winter meeting. It shall be the duty of the executive committee to carry into effect the will of the active membership respecting the subjects to

be discussed at its meetings, the matter which is to appear in its publications, and to present at each meeting names of suitable candidates for admission to active membership. Election to active membership is by a majority vote of the active members present.

SEC. 3. Publications.—(1) The society shall publish "The Yearbook of the National Society for the Scientific Study of Education," and such supplements as it sees fit to add.

(2) The time of publishing the yearbook or supplements shall be determined by the committee.

(3) These publications shall be sent to the active and associate members of the society.

ARTICLE III.

SECTION 1. Time and Place of Meeting.—(1) This society shall meet twice a year.

(2) One of these meetings shall be in connection with, and at the same time and place as, the National Educational Association; the other in connection with, and at the same time and place of meeting as, the Department of Superintendence.

(3) All the details of these meetings shall be determined by the executive committee.

ARTICLE IV.

This constitution may be amended at any regular winter meeting by vote of two-thirds of the active members present.

LIST OF ACTIVE MEMBERS.

Frank G. Blair, State Normal School, Charleston, Ill.
Richard G. Boone, superintendent, Cincinnati, Ohio.
Francis B. Brandt, Central High School, Philadelphia, Pa.
Elmer E. Brown, University of California, Berkeley, Cal.
George P. Brown, editor, Bloomington, Ill.
Martin G. Brumbaugh, commissioner of education, San Juan, Porto Rico
William L. Bryan, University of Indiana, Bloomington, Ind.
George V. Buchanan, 614 W. 7th street, Sedalia, Mo.
Edward F. Buchner, New York University, New York City.
Frederick Burk, State Normal School, San Francisco, Cal.
Nicholas Murry Butler, Columbia University, New York City.
C. P. Carey, Wisconsin School for the Deaf, Delavan, Wis.
Clarence F. Carroll, superintendent, Worcester, Mass.
John W. Cook, State Normal School, DeKalb, Ill.
Ellwood I. Cubberley, Stanford University, California.
Washington S. Dearmont, State Normal School, Cape Girardeau, Mo.
Charles De Garmo, Cornell University, Ithaca, N. Y.
John Dewey, University of Chicago, Chicago, Ill.
Edwin G. Dexter, University of Ill., Champaign, Ill.
Richard E. Dodge, Columbia University, New York City.
F. B. Dresslar, University of California, Berkeley, Cal.
Samual T. Dutton, Columbia University, New York City.
Charles B. Dyke, Kamehameha School, Honolulu, Hawaii.
W. H. Elson, superintendent, Grand Rapids, Mich.
Frank A. Fitzpatrick, publishers' agent, Boston, Mass.
David Felmley, State Normal University, Normal, Ill.
Charles B. Gilbert, superintendent, Rochester, N. Y.
Newell D. Gilbert, superintendent, DeKalb, Ill.
J. P. Gordy, Ohio State University, Columbus, Ohio.
James M. Greenwood, superintendent, Kansas City, Mo.
William N. Hailman, superintendent, Dayton, Ohio.
Reuben P. Halleck, Boys' High School, Louisville, Ky.
Rufus H. Halsey, State Normal School, Oshkosh, Wis.
Walter L. Hervey, Department of Education, New York City.
Edgar L. Hewett, Normal University, Las Vegas, N. M.
M. J. Holmes, State Normal University, Normal, Ill.
Wilber S. Jackman, Chicago Institute, Chicago, Ill.

- Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.
Lewis H. Jones, superintendent, Cleveland, Ohio.
Charles H. Judd, Wesleyan University, Middletown, Conn.
Grant Karr, State Normal School, Oswego, N. Y.
J. A. Keith, State Normal School, DeKalb, Ill.
Ossian H. Lang, editor, New York City.
G. W. A. Luckey, University of Nebraska, Lincoln, Neb.
George H. Locke, University of Chicago, Chicago, Ill.
Livingston C. Lord, State Normal School, Charleston, Ill.
Frank A. Manny, Ethical Culture School, 109 W. 54th street, New York City.
Guy E. Maxwell, State Normal School, Mankato, Minn.
William H. Maxwell, superintendent, New York City.
Charles McKenny, State Normal School, Milwaukee, Wis.
Charles A. McMurry, State Normal School, DeKalb, Ill.
Frank M. McMurry, Columbia University, New York City.
Israel C. McNeill, State Normal School, West Superior, Wis.
Will S. Monroe, State Normal School, Westfield, Mass.
Ernest C. Moore, University of California, Berkeley, Cal.
Frank Morton, Lowell High School, San Francisco, Cal.
Theodore B. Noss, State Normal School, California, Pa.
Michael V. O'Shea, University of Wisconsin, Madison, Wis.
Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
Francis W. Parker, Chicago Institute, Chicago, Ill.
John T. Prince, state agent, West Newton, Mass.
Charles R. Richards, Columbia University, New York City.
Stuart H. Rowe, supervising principal, New Haven, Conn.
James E. Russell, Columbia University, New York City.
Myron T. Scudder, State Normal School, New Paltz, N. Y.
Levi Seeley, State Normal School, Trenton, N. J.
Edward R. Shaw, New York University, New York City.
David E. Smith, State Normal School, Brockport, N. Y.
F. Louis Soldan, superintendent, St. Louis, Mo.
Edward D. Starbuck, University of California, Berkeley, Cal.
Z. X. Snyder, State Normal School, Greeley, Colo.
W. S. Sutton, University of Texas, Austin, Tex.
Spencer Trotter, Swarthmore College, Swarthmore, Pa.
C. C. VanLiew, State Normal School, Chico, Cal.
James H. VanSickle, superintendent, Baltimore, Md.
Samuel Weir, New York University, New York City.
John J. Wilkinson, superintendent, Mattoon, Ill.
Lightner Witmer, University of Pennsylvania, Philadelphia, Pa.
L. E. Wolf, superintendent, Kansas City, Kan.

THE FIRST YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART II

THE PROGRESS OF GEOGRAPHY IN THE SCHOOLS

BY

W. M. DAVIS

HARVARD UNIVERSITY

A PAPER PREPARED FOR DISCUSSION AT THE GENERAL MEETING OF THE SOCIETY
AT MINNEAPOLIS AT THE TIME OF THE NATIONAL EDUCATIONAL ASSO-
CIATION, JULY 9, 1902, AT 2 P. M.; ALSO AT THE SUMMER
SESSIONS OF UNIVERSITIES AND NORMAL SCHOOLS
IN DIFFERENT SECTIONS OF THE COUNTRY

EDITED BY

CHARLES A. McMURRY

CHICAGO

The University of Chicago Press

1902

COPYRIGHT, 1902, BY
CHARLES A. McMURRY
CHICAGO

PRINTED BY THE UNIVERSITY OF CHICAGO PRESS, CHICAGO

C O N T E N T S.

THE PROGRESS OF GEOGRAPHY IN THE SCHOOLS. <i>W. M. Davis</i>	7
1. Encouragement from Recent Progress	7
2. Direction in Which Further Progress Is Most Needed	7
3. Geography Is Too Generally Treated as an Elementary Study	7
4. Illustration from Disputed Boundaries	8
5. Illustration from Immaturity of Geographical Terminology	9
6. Inattention to Mature Geography Has a Bad Effect on School Geog- raphy	11
7. Deficiency of Higher Learning in Geography	11
8. Deficiency of Higher Learning Discourages High Ideals	12
9. Value of Principles <i>versus</i> Items, Illustrated by Geometry and Physics	13
10. Examples of Excessive Detail in the Study of Counties	14
11. The Three Stages of Geographical Development	16
12. The Content of Modern Geography	17
13. The Unity of Geography	19
14. The Complexity of Geography	20
15. The Limits of the Sciences	21
16. Systematic and Regional Geography	23
17. Systematic Geography	25
18. Systematic Physiography	25
19. Principles of Systematic Physiography	27
20. Regional Physiography	29
21. Relation of Systematic and Regional Physiography	30
22. Systematic Ontography	32
23. Systematic and Regional Geography	36
24. Relation of Mature Geography to School Geography	37
25. Better Preparation of Teachers	37
26. Better Equipment of Geographical Laboratories	38
27. Replacement of Items by Generalities	39
28. Geographical Facts Must Be Made More Real	40
29. Laboratory Exercises Must Be Specific	42
30. The Rational Element and the Disciplinary Value of Geography Increase Together	43
31. Certain Parts of Geography Are Not Presented in Good Sequence	45
32. Distribution of the Divisions of Geography in Secondary Schools	46
33. Educational Value of Geography	48
THE RELATION OF GEOGRAPHY TO THE SCIENCES. <i>Herbert M. Wilson</i>	49

THE EXECUTIVE COMMITTEE
OF THE
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF
EDUCATION

NICHOLAS MURRAY BUTLER, - Columbia College, New York, *President*
CHARLES DEGARMO, - - - Cornell University, N. Y.
WILLIAM L. BRYAN, - - - University of Indiana, Bloomington, Ind.
DAVID FELMLEY, - - - State Normal University, Normal, Ill.
EDWARD R. SHAW, - - - New York University, New York
CHARLES A. McMURRY, The University of Chicago Press, Chicago, Ill.,
Secretary-Treasurer

NOTICE TO MEMBERS.

The second part of the YEARBOOK for 1902 is herewith sent to each active and associate member.

Besides the meeting for the discussion of these papers on geography at the National Educational Association at Minneapolis, it is expected that meetings will be held this summer at the various summer sessions of universities and normal schools, where these papers on geography can be discussed. It may be well also to arrange meetings for the discussion of the papers on history, previously published in Part I.

The active members are specially requested to organize such meetings and take full charge of them. Let a place and time of meeting be arranged and those desirous of studying the papers be supplied. Any member may secure copies of the YEARBOOK at the usual rates by addressing the University of Chicago Press. Those taking charge of the meetings are requested to report them later to

C. A. McMURRY, *Secretary.*

THE FIRST YEARBOOK.

THE PROGRESS OF GEOGRAPHY IN THE SCHOOLS.

By W. M. DAVIS.

1. *Encouragement from recent progress.*—The most notable characteristic of the condition of geography in the schools during the last ten years is the marked improvement that it has experienced. The improvement accomplished, and still in progress, is most encouraging. The rate of advance is as great as is consistent with sound development. Chief among the impulses toward this march of improvement in geography, as in various other school subjects, have been the reports by committees of specialists, particularly those published by the National Educational Association. These reports have furnished many excellent suggestions which superintendents and teachers have either adopted or discussed; and the discussions thus excited may be considered as beneficial to the subject over which they are held, as were the improvements that were immediately adopted. All this is most gratifying. Let reports, improvements, and discussions continue. Geography in the schools will thrive on them.

2. *Direction in which further progress is most needed.*—There remains, however, much to be done. The one thing which would be above all others most helpful in continuing the progress already made, is the development of a higher ideal as to the content of geography among mature students.

3. *Geography is too generally treated as an elementary study.*—It is a singular fact that there are, particularly in this ambitious country, very few students of geography as a mature subject. Most persons of full age who are directly concerned with geography are engaged in presenting its supposed elements to immature pupils. Very few are engaged in developing geography for mature students. Very few mature students are carrying forward original research in geography of a grade at all comparable to the research now so generally accomplished in various standard mature subjects. How many original

investigators in geography do you know? Ask the same question concerning physics and chemistry, geology, botany and zoölogy, mathematics and astronomy, philology, history, and literature, and make note of the contrast that all these maturely developed subjects present with geography. All these other subjects have habitual representation in our colleges and universities. Many of them engage the attention of professional experts. Geography is seldom recognized in these higher educational reaches. Nor are there, except rarely, professional positions in which mature geographers are employed on advanced work. There are truly many topographers, many pilots, many clerks in post-offices and express companies, many officers of our consular service, all of whom have contact of one kind or another with geography; but there are very few professional geographers, deservedly so called. It is true that many persons travel far and wide over the world, and some of them write very entertaining books; but travel no more makes the traveler a geographer than it makes him a botanist or an historian. Mere facts of occurrence and location have about the same rank in geography that words have in literature, dates in history, and specific names in botany and zoölogy. A traveler's narrative is no more a geographical work because it makes mention of a hill and a harbor than it is a botanical work because it tells something about a forest and a swamp. It is chiefly among the small body of explorers that we find mature geographers; and yet not all of these brave and energetic workers attempt to develop the more scientific aspects of geography. Explorers are generally men of resolute action rather than of an analytical turn of mind; and they too often have about the same relation to mature geography that collectors of wild animals have to mature zoölogy. All of these workers, professional and amateur, contribute their sheaves of fact to the total gathering of geographical knowledge; but the facts thus gathered stand in need of discussion and co-ordination; the sheaves must be threshed and winnowed. The advanced workers, seriously engaged in separating the grain from the chaff and assorting the grain according to its quality, are few indeed.

4. *Illustration from disputed boundaries.*—The boundaries between nations are frequently defined in terms of topographical forms, and one might expect that here at least a mature understanding of geography would have been developed. But there are at present two serious disputes regarding boundaries in which the misunderstandings

arise directly from the treatment of topographical features in an elementary, immature manner. The Argentine-Chilian boundary, as verbally defined in the treaty of 1881, takes no such account of the possible occurrence of transverse, through-going valleys as to predetermine beyond chance of misunderstanding the course of the boundary in such districts where the continental divide departs significantly from the crest line of the cordillera of the Andes. The terms of the treaty appear to have been based on the antiquated idea that mountain ranges must rise between river basins, and that rivers cannot pass through mountain ranges; an idea which, as Prince Kropotkin has shown, has long worked mischief in the cartography of Asia, by placing ranges where none exist, and by omitting them where they occur; an idea which should long ago have disappeared from geography, had the subject been maturely and scientifically developed.

The Alaskan boundary, as verbally defined in the British-Russian treaty of 1825, takes no such account of the possible complexity of mountain form and irregularity of coasts as to preclude misunderstandings that might arise with respect to the summits of mountain ranges, or with respect to outer and inner shore lines. It is true that the treaty here in discussion was made three-quarters of a century ago; yet even at that time the occurrence of detached and discontinuous ranges and of irregular coasts was perfectly well known, and it would seem that the commissioners who framed the treaty might have avoided all possible ambiguity had they based their definitions on a more mature study of topographical forms. I do not propose to express here any opinion regarding the rights in either of these disputes; but only to call attention to the fact that the disputes have resulted from an inadequate comprehension and definition of topographical forms; that is, from the employment of an elementary knowledge of geography in the treatment of a problem where an advanced knowledge would have been much more appropriate.

5. *Illustration from immaturity of geographical terminology.*—Any subject that is pursued from elementary teaching through secondary and collegiate study to the highest reaches of independent investigation is always accompanied by an expanding terminology. The terms that suffice for the beginner do not suffice for the advanced student. The new wine of discovery cannot be held in the old bottles of school-day definitions. It is true that the terminology thus developed is sometimes of an embarrassing fulness. It is sometimes unnecessarily

detailed, but there can be no question that it is on the whole of great value. It is well that the specialist should be cautious about introducing new terms; that he should test his inventions by home use before offering them in print to his colleagues. It is true also that of the total number of terms invented by the specialist in this field or that, many perish, and only the needed ones survive in general scientific use. If it were possible to endow all specialists with so much wisdom that they could foresee the needs of the next generation, and invent only such terms as would prove of permanent value, much of the difficulty that is inherent in the question of terminology would disappear; but such wisdom is not granted to investigators any more than to lawmakers. All that can be expected is that each individual should work carefully and honestly, and that the processes of natural selection and the survival of the fittest should operate in terminology as well as elsewhere. The development of new methods and the discovery of new results make the introduction of new terms inevitable. A good name is of great assistance in making the thing named more generally known. A growing terminology is characteristic of all growing sciences.

In reviewing the literature of geography it is remarkable to note that the terminology of school days is so little extended in the productions of mature writers. Consider, for example, the subject of mountains. Look over any school geography and count the nouns and adjectives that are used with a technical meaning in this chapter of the subject; chain, range, peak, summit, ridge, pass, are among them. Now look over the best essay that can be found in which a mountainous region is described by a mature writer for mature readers, and make another count of the same kind. The adjectives will be found to have "grown up;" that is, they comprise a number of more learned words, such as precipitous, stupendous, imposing, formidable; yet none of these are introduced with anything like technical definitions; they are used in a general literary sense such as will be understood by the polite reader. Among the nouns there will be a moderate number of new words, most of which are taken from the local patois of the mountain people, or from the somewhat colloquial language of mountain climbers; but there is nowhere any sufficient indication that these new words are taken from a systematic, consistent, and thoroughgoing terminology of mountain forms. The same is true of nearly all the other divisions of geography. Even in reports so important as those of the

Mississippi River Commission, certain features of the great river and its flood plain go practically unnamed and therefore unnoticed. The small number of technical geographical terms that have been introduced by a few writers have as yet gained little general currency.

The absence of a mature terminology appropriate to mature geographical descriptions is one of the most patent signs that geography is not maturely developed.

6. *Inattention to mature geography has a bad effect on school geography.*—There can be no question that the neglect of geography as a subject for mature study has had and still has an injurious effect upon the condition of geography in the schools. Special emphasis must be given to this point, for it is not generally enough recognized. One may attend a conference of superintendents and teachers before whom geography is a subject for discussion, and hear much said about this or that aspect of the subject, about this or that device for its presentation, and yet hardly a suggestion may be made to the effect that teachers of geography should be better taught, and still less is an intimation offered that geography itself is in need of more mature development as a scientific study. It is not only in our own country that this complacent attitude prevails: three recent articles by representative foreign authors¹ contain practically no indication that geography in the schools still suffers from lack of preparation on the part of the teacher, and from lack of advanced work on the subject in the universities. These deficiencies are less noticeable in continental schools, particularly in Germany, where it is so often the case that a secondary teacher holds the degree of Doctor of Philosophy; but they are certainly serious in Great Britain, where geography in the schools is a very commonplace study, in spite of the enormous importance of geography to the British empire.

7. *Deficiency of higher learning in geography.*—The most conspicuous evil consequences of this state of things is the want of a well-developed body of higher geographical learning with respect to which the geography in the schools shall stand only as a beginning. It is unfair to look to teachers of the supposed elements of a subject

¹ JAMES BRYCE, "Importance of Geography in Education," *Geographical Journal* (London), Vol. XIX, 1902, pp. 301-313. ELISÉE RECLUS, *L'Enseignement de la Géographie*, Publication No. 5, Université Nouvelle, Institut géographique de Bruxelles, 1901. H. FISCHER, "Zur Methodik des erdkundlichen Schulunterrichts," *Zeitschrift der Gesellschaft für Erdkunde* (Berlin), 1902, pp. 112-142.

for the development of its more advanced parts ; school-teachers are fully occupied with duties of their own. The body of higher learning must be developed in geography as it has been in other subjects, namely, by the devoted work of specialists who give their best thought to the advance of their subject. Many specialists in other sciences are professors in colleges or universities, experts in governmental bureaus, or amateurs of high intellectual rank ; but geography is seldom represented in this goodly company, and hence the development of mature geography is slow. Many subjects that make their beginning under the cover of geography outgrow their shelter and attain an independent maturity. Thus astronomy, geology, botany, zoölogy, history, government, and economics, extracts from whose contents are first introduced into school work along with geography, gain places for themselves in college, while geography disappears. It is as if the trunk subject had subdivided, like an elm, into many divergent branches, each of which flourishes alone. I wish the simile might be that of a sturdy pine whose trunk is not sacrificed, however many limbs it gives forth. There can be little question that, as long as geography is not represented in colleges, the future teachers of geography in the schools will be insufficiently educated in their subject. If the power of this society were turned toward bringing about a better recognition of geography in the colleges and universities, a most advantageous reaction upon the schools would be secured. The result would not be immediate ; it might be slow ; but it would be sure.

8. *Deficiency of higher learning discourages high ideals.*—In the absence of a mature development of our subject, its ideals must be of a low order, and its early steps can make only uncertain progress in advancing toward an unknown goal. What would the Latin, the geometry, the physics of our schools be, if those subjects had no representation in the colleges ! How definitely the first steps in these subjects lead toward the great body of their higher learning ! How greatly would the geography of the schools be improved if geography had as well established a place in our colleges as history has ! I will not here take up the question whether geography is entitled to so universal a recognition. Some educators may think it is not, and certainly the existing distribution of appointments in our colleges would confirm that opinion ; but it may be safely maintained that, if a professorship of geography existed in every college where there is a professorship of history, our ideals as to the mature content of geography would be

much enlarged above what they are today, and our conception of what constitutes the elements of the subject would be correspondingly changed. We should at least be cured of the forlorn idea that geography is only the study of the location of things.

One of the most evident results of the immature development of geography is that details rather than principles have been dwelt upon in school work. This is no longer so true as it was twenty years ago, but it is still too true. It is by no means always the fault of the teachers. It may be due in large part to the low ideals indicated in official examination papers, for if examinations are largely directed to testing a knowledge of the innumerable details of geography, then the teacher must cram the pupil, and cramming trains the memory rather than the intelligence. If emphasis is, on the other hand, given both in teaching and in examinations to general principles and important relations, under which items are adduced simply as illustrations, then the intelligence as well as the memory is developed. Items of occurrence and location are not to be neglected, but they should be studied in their natural relations instead of as isolated facts.

This principle is now pretty generally understood. It is agreed that a cape, a river, a boundary, a city, must not be merely located and memorized, and then set aside, unused, unrelated to anything else; for with teaching of this kind the essential spirit of geography remains dormant. Yet such is the popular pressure for a knowledge of the names and places of things that many things are learned merely by place and name. It is usually held to be necessary to go briefly over a large number of items, even if there is no time to learn their relations without slighting other parts of the subject; but this supposed necessity is open to question. It should be carefully considered whether the names that are learned have been chosen with good judgment from among the countless items of geography; whether they are really chosen at all, or simply inherited from a time when geography had not reached its present development; whether their choice is made with due regard to the higher reaches of geography, and not merely in obedience to a poorly educated public sentiment as to the content of our subject; and finally whether items should after all be given so much prominence as they have often had, with the result of subordinating the large principles under which the items stand only as individual examples.

9. *Value of principles versus items, illustrated by geometry and*

physics.—A possible rearrangement of the emphasis on items and principles in geography may be illustrated by reference to the actual practice in geometry and physics. No good teacher would approve of memorizing the particular figure of a theorem in geometry, with its individual proportion of parts, its attitude on the blackboard, and its special lettering, as a means of learning the general quality of the theorem that the figure illustrates. It is the generality of the theorem that is impressed; it is the possibility of applying a general principle to any particular case that falls under it that must be emphasized in good teaching. So in physics; as much care as may be properly expended on the construction and manipulation of a piece of apparatus, the emphasis of good teaching must be given to the principle which the apparatus is used to illustrate. I believe it is possible to discover and establish general principles in geography likewise, and to teach individual items chiefly as illustrations of the principles under which they fall.

It must be admitted, however, that geometry and physics are not so closely analogous to geography that the best method of study in the first two is, therefore, the best in the third also. The lettering of a chalk figure on a blackboard and the construction of a piece of simple apparatus have no such importance as an actual village in a valley or as an actual island in the sea. Nevertheless geographers may profit by taking heed of the subordination of item to principle in geometry and physics; they may perhaps be thus aided in perceiving the proper relation of the specific to the general in their own subject.

10. *Examples of excessive detail in the study of counties.*—In illustration of excessive attention to detail let me cite certain official examinations that have sometimes included such questions as: "Name the counties in order along the southern border of this state." Such questions have been defended because it is held to be desirable that every inhabitant of a state should know the counties into which his state is divided; but this assumption is wide open to doubt when it is seen that the counties cannot be learned except by sacrificing something else. It is by no means demonstrated that the time demanded in acquiring this knowledge has been used to the best advantage by the pupil. Very little application is made of the knowledge after it is acquired. It would be interesting to inquire of pupils thus trained whether the list of counties is gladly retained in the memory of mature

years, or willingly forgotten. Surely, if forgotten, the loss does not impair the usefulness of a citizen, since the forgotten items can be easily regained when wanted. There are very few of our most intelligent friends who carry in their memories such items as the names and relative position of all the counties in their home state or in any other state, and it is certainly very rarely the case that any well-educated man or woman regards such use of memory as a measure of a cultivated intelligence. Truly, something about counties may well be taught under political geography, and still better under civics. The subdivision of the larger counties of early settlement into smaller counties as population grows, deserves mention in history; and the unorganized "plantations" still found in the backwoods of Maine may well be cited as examples of retarded development, illustrating today a condition through which other states have long ago passed. But, as a matter of fact, while the division of a state into counties is a matter of practical convenience for various purposes of record and administration, the actual counties into which a state is divided are not worth memorizing in competition with the many more educative problems of geography. If counties were the whole content of geography, we might have to learn them all over the country; but they sink into insignificance in comparison with many other matters in the actual content of our subject. If a sheriff, an express agent, or a postal clerk needs to know the counties of a state (very likely not the state in which he was "raised"), he can learn them at short notice, and the rest of us can get along very well by looking up any particular county in an atlas when we want to know something about it; and, by the way, the habit of looking up things in an atlas is worth the memorized lists of the counties in a dozen states. Indeed, in some respects the subdivision of states into counties is outgrown; notably with regard to county prisons, into which all classes of local malefactors are thrown, unclassified, greatly to the injury of many of them, and hence to the harm of the community. This may have been justifiable when means of transportation did not include railroads; but it endures today in the more closely settled states only as the inheritance of an earlier condition which has not yet changed into appropriate relation to its new environment.

The "tier of counties" question is probably less common now than it used to be; but it serves to illustrate very well a low ideal as to the content of geography on the part of examination boards; the subordination

of school work to an uneducated public sentiment that demands of school children a multitude of details, concerning many of which intelligent persons do not regret their ignorance, because their minds are occupied with better things. While the low ideal exists the work of the teacher and the examiner must lead up to it. When the ideal as to the content of geography is raised, school work will rise with it to a higher grade than it now reaches, and then the counties of a state will be counted among the "honorable points of ignorance."

11. *The three stages of geographical development.*—As a means of leading toward higher ideals, let me now attempt to show that geography as a mature subject is capable of a higher development than it has yet reached. In this connection it will be well to review briefly the three stages of development recognizable in the progress of our venerable subject. Until within about a hundred years the content of geography consisted of a body of uncorrelated facts concerning the earth and its inhabitants. The facts were described empirically, and as a rule very imperfectly. Their location was noted, but their correlations were overlooked ; it had not indeed been clearly made out that correlations existed. This blindly inductive first stage was followed by a second stage, which was opened by Ritter's exposition of the relationship between the earth and its inhabitants. True, Ritter and his school did not carry the idea of relationship systematically through all parts of the subject ; and such relationships as were noted had to be explained on the old doctrine of teleology—the adaptation of the earth to man—instead of on the modern principle of evolution—the adaptation of all the earth's inhabitants to the earth. It is this principle which characterizes the third stage of progress, and along with it goes a principle of almost equal importance ; namely, that all the items which enter into the relation between the earth and its inhabitants must be explained as well as described, because explanation aids so powerfully in observing and appreciating the facts of nature. It should be noted that the two great advances by which the third stage of geographical progress is set forward from the second are the contributions of others than geographers ; the principle of organic evolution is owed to the biologists ; the principles under which explanation is found for the features of the earth are owed chiefly to astronomers, physicists, and geologists. This indebtedness might not have been so heavily contracted if the geographers of the older school had been less content with a purely inductive treatment of their subject ; if they had

asked themselves, not only where and what, but also how and why things are as we find them.

12. *The content of modern geography.*—Geography has today entered well upon its third stage of progress. The "causal notion" is generally admitted to be essential in the study of the relation of the earth and its inhabitants. Thus understood, geography involves the knowledge of two great classes of facts; first, all those facts of inorganic environment which enter into relationship with the earth's inhabitants; second, all those responses by which the inhabitants, from the lowest to the highest, have adjusted themselves to their environment. The first of these classes has long been studied as physical geography, although this name has been used as a cover for many irrelevant topics. In recent years there has been a tendency to compress the name into the single word, "physiography."¹

The second of the two classes of facts has not yet reached the point of being named, but perhaps it may come to be called ontography. Ecology, to which increasing attention is given by biologists, is closely related to what I here call ontography, yet there is a distinction between the two, in that ecology is concerned largely with the individual organism, while ontography is intended to include all pertinent facts in structure, physiology, individual, and species.

Neither physiography nor ontography alone is geography proper, for geography involves the relation in which the elements of its two components stand to each other. Each of the components must be well developed before geography can be taken up as a mature study.

The relations involved in geography, as thus understood, are of the most varied nature. A relation that has been frequently quoted since Ritter first called attention to it is the one between the irregularity of continental coast lines and the stage of human development; but a continuous series may be made from this large and general relation to such trifling matters as the relation that determines the point where a common road bridges a stream. Evidently, then, it is not the dimensions of the relation that determine its geographical quality, although its dimensions may have much influence in fixing the stage at which it may

¹In Great Britain, "physiography" is used under the authority of the South Kensington examinations as the name for a general study of inorganic nature, ranging from geology to astronomy. In the United States physiography is defined by some as the physical geography of the lands; but the Committee of Ten made it equivalent with modern physical geography, and defines it as the study of the physical environment of man.

be profitably introduced in school work, and the emphasis that is to be given to it there. Oceans, lofty mountain ranges, and deserts are formidable barriers that oppose the migration of plants and animals; but from these great controls over the movement of whole species and races a continuous series of examples might be made, leading down to the control that a hill slope exerts over the direction of a plow furrow.

It is not only to the inorganic parts of the earth that man is related, but to the organic parts as well. It is the scarcity of plant and animal food that limits the human population of deserts, just as it is the aridity of climate that limits the number of desert plants and animals. It is the density of forest growth under equatorial rains that has made some of the savage natives of New Guinea expert canoe-men; the rivers there are more available as highways than the plant-crowded land. The relation of population and industries to the cotton, corn, and wheat crop of the United States is a standard geographical problem. Moreover, while attention was formerly given in largest part to the relation of the earth to man, and while this still seems properly enough to characterize the more elementary stages of geography, a large share of attention in its mature stages must be given to the relation of the earth to all kinds of life, and to the interrelations of all kinds of life in so far as they involve considerations of place and space. Cattle are excluded from certain parts of Africa by the tse-tse fly; this is as good geography as is the relation of the Gaelic and English languages to the highlands and lowlands of Scotland. Man was once looked upon as set apart from the rest of organized beings, but this is no longer possible. The devices that he has employed and the battles that he has fought in gaining his present place resemble more than they differ from those by which all plants and animals have gained their places. Indeed, it is but the commonplace of comparative zoölogy today to see in man a great number of structures and processes that have been inherited from a time when he was not man; and many of these structures and processes are responses to his physical environment.

A science cannot be cut off arbitrarily in the midst of a continuous series of relations that characterize it. Geography must consider the ontography of the lowest beings as well as of the highest. It should therefore be our effort, in giving to geography a mature development, to open our conception of its content as widely as possible, rather than to set narrow limits to it; to probe all the elements of physical environment and all the manifestations of life in order to discover examples

of relations that have thus far been overlooked. Only when geography is thus more fully constituted a mature subject will it be possible to make the best selection of those parts which may be considered elementary; only through the development of the higher reaches of the subject can the lower reaches be best ordered. It is for this reason that these somewhat transcendental considerations deserve the attention of thoughtful and progressive teachers.

13. *The unity of geography.*—It is especially the factor of relationship of earth and inhabitants that characterizes geography as a subject apart from other sciences, and that gives an essential unity of content and discipline to all its varied parts. Objection has been made to geography because of its composite nature ; it has been reproached with being only a patchwork of scraps from many other subjects, without any essential quality of its own. These assertions do not seem to me to have force : in the first place because other subjects as well as geography are composite if they are judged only by the things that they study, and by the processes employed in their study; and, in the second place, because geography, properly understood, has as well defined an essence of its own as other subjects have.

It is perfectly true that the geographer, even the young geographer, must learn something of the planets in connection with his study of the earth as a globe, something of the behavior of gases in connection with his study of the atmosphere, something of the history of the earth in connection with his study of land forms, something of the structure of plants and animals in connection with the ontographical half of his subject ; but it is no less true, that the astronomer must learn something of the earth as a globe in connection with his study of the planets, the physicist must learn something of the atmosphere in connection with his study of gases, the geologist must learn something of existing land forms in connection with his study of the past history of the earth, the biologist must learn something of the lands and the seas in connection with his studies of plants and animals. One is tempted to say that all things seem to be shared by all sciences, and that each science can be defined only in terms of the relation in which it studies things, rather than in terms of the things that it studies. The geographer learns what he wishes to know about the earth as a globe, even though this chapter of his study may be related to astronomy; about the atmosphere, even though he may divide this part of his subject with the physicist; about plants and animals, even if this seems

to be a trespass on biology ; and then he strings all the things he has learned on the thread of the relation between earth and life. The unity of consideration thus gained warrants the inclusion of all these things under his subject of study, and it gives us a right to consider the subject of study as a science-unit.

14. *The complexity of geography.*—It should be no reproach to geography that it is concerned with a large variety of things, some of which are treated elsewhere ; for the same may be said of all the other sciences. Every material thing that is studied by the geographer is also fit for study by the chemist and the physicist. The chemist may wisely inquire into the nature of the elements and compounds that are found in minerals, plants, and animals. The physicist may advisedly study the physical properties of these things and the forces by which they interact. If the chemist and the physicist study in their laboratories rather than outdoors, this is only because they are more interested in systematic than in regional physics and chemistry ; in the establishment of general laws than in the record of individual occurrences. The weathering of a rock surface, the fall of a rock fragment from a cliff, are processes that come under the laws of chemistry and physics ; but the chemist and the physicist do not trouble themselves especially about the innumerable repetitions of these processes in nature ; they are satisfied with establishing the laws that generalize the processes, and with good reason, as I shall show further on.

It should surely be no reproach to the mature geographical investigator that he must study many kinds of things, and that he must share many subjects with other sciences, for all this is equally true of the geologist and the historian. The geologist must know much of chemistry and of physics, much of geography and of biology ; but he strings all his facts on a single thread, the sequence of events in the earth's history, and thus arranged they belong to geology. The historian must know all manner of things in the realms of geography, language, and economics ; and he would do well to know something of biology if he would really appreciate many of man's motives ; but all the facts that he gathers are to be arranged so as to exhibit the sequence and relationship of events in human progress, and thus arranged they belong to history.

Not only do other sciences resemble geography in gathering their items from many fields of knowledge, but like geography they employ many methods in reaching their results. If geographers must follow

the methods of the astronomer in order to understand the earth as a globe, of the physicist in order to appreciate climatic factors, of the geologist in order to understand land forms, of the biologist in order to apprehend the responses of living beings to their environment, they are neither peculiar nor unfortunate in this breadth of exercise. The astronomer has long had to use mathematics, yet astronomy is not mathematics, and mathematics is not astronomy. In recent years the astronomer has had to learn much of physics and chemistry, yet no one thinks of confusing these well-defined sciences on that account. Changes of color on Mars with his change of seasons suggest that the astronomer will soon have to borrow something from the biologist ; so much the better if he does, and we may be sure that both astronomy and biology will thrive under the new régime. The chemist constantly employs the methods of the physicist and the mathematician ; like everyone else, he uses language to express his thoughts, although language is the special study of the philologist ; and he must follow accurate processes of thought if he would reach good results, even though the processes of thought are the special province of the logician.

In view of these comparisons it does not seem to me that geographers need fear that their subject is so complex as to be in danger of disintegrating, provided they give heed to its integrating essence. Geography is complex, like other sciences ; but like other sciences, geography is unified by the continuity of its essential quality through all its varied parts. Possibly geography is the most complex of all sciences : some one science must stand at the head of the list in this respect, but it must therein differ only in degree, not in kind from its fellows ; and it is yet to be shown that complexity is not an attractive advantage, instead of a deterring disadvantage.

15. *The limits of the sciences.*—Although one may be at much pains to indicate the limits by which his science is reasonably bounded, it does not follow that he must hold himself too narrowly within these limits. Truly, the astronomer is chiefly concerned with the heavenly bodies ; but he is welcome to come down, if he wishes, to things terrestrial, and to define the boundary of Colorado in terms of astronomical quantities ; but he might as consistently consider himself responsible for the explanation of plant growth during the season when the sunshine is long and strong. The boundary of Colorado by meridians and parallels is as truly a geographical matter, as truly a response to physical environment, as is the settlement of a colony at a

protected bay head, or the building of a beaver dam in the open valley of a small stream.

The geologist may, if he so desires, supplement his historical account of the formation of the Lake Superior iron ores, of the telluric forces by which the ore bodies were deformed, and of the erosion by which they were laid bare, with a consideration of the modern times of discovery and exploitation ; and, in order to impress his students with the richness and magnitude of the ore deposits, he may explain how they have led to the development of great business undertakings ; and he is perfectly welcome in thus overrunning the fields of geography, history, economics, metallurgy, and so on. The physicist may exemplify the laws of gases by explaining the heat and dryness of the chinook wind, or he may illustrate the laws of fluids in a discussion of the waves of the sea ; but the winds and the waves are none the less elements of geographical environment. The historian is welcome to introduce as much geology and geography as he desires into his account of the promontories and bays of Greece ; the wonder is, indeed, that he does not do so more freely than is today habitual ; he is certainly warranted in explaining the steam engine, the Bessemer process of making steel, and the various applications of electricity as events of high importance in the progress of the last century and a half ; and he is fully justified in giving some account of the principles of organic evolution, because they have so profoundly modified philosophical and religious thought in the last third of a century. Surely, all these things are as pertinent to the history of man as are the revolutions of a more military sort.

It is, however, a significant fact that astronomers do not find time to tell anything about the boundary of Colorado ; they are too much occupied with their own affairs to take up geographical problems. Geological text-books have no pages to spare for the history of the development of iron ore mining around Lake Superior ; they have indeed hardly pages enough to tell all that is desirable as to the origin of the ores. It is only in the largest volumes of history that space is found for accounts of the inventions that have revolutionized the modern world, although these inventions are quite as pertinent to the subject of history as are the tactics of a general on a battlefield. As a matter of fact, such subjects as astronomy, geology, and history are so rich in materials and so well organized in methods that they are seldom tempted to run over other fields than their own ; and it is to

this condition of abundant material and well-organized method that I hope to see geography advance. The geographer may, if he wishes, tell about the individual features of other planets than the earth ; but there is so much to say about the earth as a globe that everything about the other planets must be excluded that does not aid the study of our own planet. He may turn back from the present to the past, and describe the results of many geological discoveries ; but it is unwise to do so unless these discoveries bear immediately on present geographical conditions. He may feel tempted to explain the principles of systematic botany and zoölogy, and to enlarge upon the facts of history ; but in so far as these excursions lead him into fields that are outside of geographical relationships, he had better avoid them ; not because such excursions are uninteresting or unprofitable in themselves, but because they take time that can ill be spared from geographical duties. I hope to see the teacher of geography spend his time as carefully as the teacher of geometry or of chemistry does. Let him, by all means, enrich his subject by introducing all manner of pertinent illustrations ; let him show an intimate acquaintance with, and a warm sympathy for all the sciences, but let him be jealous of unwarranted infringements upon the hours allotted to his own science, and earnest in preserving its integrity. Under such a teacher no student will complain that the content of geography is so complex and its methods are so diverse that it has neither unity nor discipline.

16. *Systematic and regional geography.*—The attention given to general principles and to specific items differs greatly in the different sciences. One reason for this is that some sciences are concerned chiefly with the abstract relations or the general properties of things, while others are more concerned with the things themselves. Another reason is that in some sciences a principle or a category of phenomena may be exemplified by a great number of instances, and here a large share of attention is given to the general principles under which the instances may be grouped ; while in others the number of illustrative instances is small, and here attention is given chiefly to individual things.

Geometry and algebra are not concerned with things at all, but only with the relation of the forms and the quantities of things. Their methods are characteristically abstract, mental, deductive, and their resort to diagrams and equations is only as an aid to the memory. All their demonstrations could be performed with the eyes shut, in the

dark, if memory sufficed to follow the necessary operations through the successive steps that lead to the result. Specific instances, as in diagrams and equations, are of value only as illustrations of general principles, as has already been stated. Geometry and algebra are therefore systematic and universal, instead of being local or regional; they have no necessary association with any special place or time.

Physics and chemistry deal with the properties and relations of matter; they necessarily study individual specimens of matter, but this is in order to gain results of general application. They adduce specific instances as examples of general principles; but no one would think of attempting to teach the physics and chemistry of Minnesota, for example, although Minnesota is full of matter and energy; there is not enough of local quality to make the physics and chemistry of a state worth considering apart from the physics and chemistry of the world.

Zoölogy and botany are concerned with things; yet the effort of the zoölogist and botanist is to generalize, both as to the form and growth of the individual and as to the development of the race or species. Thus systematic zoölogy and systematic botany (meaning by these phrases not merely the study of classification, but also of individual growth and of racial development as far as they are generalized) attain a high importance. On the other hand, the individual and the grouping of individuals attract attention, because plants and animals are not uniformly spread over the world. Regional zoölogy and regional botany thus gain an importance that has no likeness in mathematics, physics, or chemistry.

Astronomy is largely specific, particularly so with regard to bodies like planets, of which but few examples are known; yet classification and the establishment of general principles are attempted whenever possible, as, for example, in the grouping together of stars according to their proper motion, their parallax or their spectrum; or in the demonstration that the planets move around the sun in ellipses. The long duration and the systematic movements of most of the things studied in astronomy give the individuals a greater importance than is attained by biological individuals; for the extremely small size, the brief existence, and the unpursuable movements of many organic forms turn attention from the individual to the species. When we come to geography, its traditional treatment is found to be very largely specific, as has been already indicated. The establishment of categories, under

which related phenomena are brought together, is seen in the use of such elementary terms as "river," "coast," "harbor," "city," and so on; but the well-recognized categories are few in number compared to those established in botany and zoölogy; and many of the categories are of so general a nature that they do not suffice to indicate clearly the characteristic features of the things that are brought under them. Moreover, it is so common to give a large share of attention, as has already been pointed out, to such items as name and location, that many a pupil must fail to appreciate the general relations of the examples that he studies. In a word, systematic geography is very poorly developed, while specific or regional geography is overgrown and misshapen. This is as if the botanist gave little attention to the kinds of plants that grow on the earth, and devoted most of his attention to the place of occurrence of his vaguely defined genera.

I therefore invite special attention to the need of developing, as maturely as possible, the systematic side of geography, as one of the means of most effectively improving the condition of geography in the schools.

17. *Systematic geography* is concerned with the kinds of relationships that exist between the earth and its inhabitants. The actual relationships are countless; the different kinds of relationships are very numerous, although less numerous than the relationships themselves. The number of kinds is so great that it is highly desirable to arrange them according to some scheme of classification, so that similar kinds of relationships may be brought into near association with one another, while unlike relationships may be set farther apart. It thus becomes essential to analyze the relations into the elements that are related, and to divide these elements into as many categories as may be needful, and then to classify these categories. By no other method can confusion be avoided in a subject so large as that with which we are concerned. I therefore propose to outline here some of the chief systematic divisions of the two parts of our subject, and to point out in particular certain divisions whose systematic arrangement is not yet generally agreed upon.

18. *Systematic physiography*.—The four chief divisions of physiography are the earth as a globe, the atmosphere, the oceans, and the lands; but the content and the order of presentation of these divisions varies in different books, and a fifth division, the distribution of plant and animals, is added by some writers. This addition may be defended

on various grounds in elementary study; but it is always open to the serious objection that it involves an essentially regional treatment, and that it therefore belongs with the regional study of the continents and their physical subdivisions, rather than with the general study of the categories into which the physical features of the earth are divided. It remains to be determined by experiment whether it would not be more useful to limit the proposed fifth division to a systematic consideration of the physiographic factors by which the distribution of plants and animals is controlled, and to place the study of organisms, in so far as it is geographical, under ontography or under regional geography.

Further subdivision of systematic physiography varies greatly with different authors, as may be illustrated by a brief consideration of the treatment of the lands. The older writers gave, as a rule, insufficient attention to this division of the subject, but this defect is now in process of rapid correction. Yet, although the different kinds of land forms are gaining an increasing attention in the newer text-books, the plan of subdivision of this large and important heading is not yet agreed upon. I venture, therefore, to offer for consideration the following outline of a scheme for its mature treatment:

1. The general features of the lands as contrasted with those of the atmosphere, the ocean, and the ocean bottom. The weathering and washing of the land surface and the attack of the sea on the land border result in slow changes of form. Branching valley systems, draining to the sea, are the most characteristic signs of these changes. The long continuation of the destructive changes must result in the reduction of any land surface, however high and uneven at first, to a low, featureless plain, close to sea level; and every example of land form must stand somewhere in the cycle of systematic changes which end in the plain of degradation.

2. The lands may be more specifically treated under three headings: (a) land forms of various structures, and in various stages of the process of sculpture; (b) streams by which the sculpture is controlled, here including glaciers as a climatic variant of water streams (winds, active in desert regions, have already been treated under the atmosphere; waves and currents, active along the land margin, have been treated under the ocean); (c) land waste on its way to the sea. These three headings are to be further subdivided as follows:

(a) Land forms should be subdivided first as to structure, and

second as to stage of development in the cycle of sculpture. The simplest structures should be considered first, and of these coastal plains may well lead the list, while mountains of greatly disordered structure come near its close. Under each of these categories young forms, that is, forms in an early stage of the cycle of sculpture, should be treated first; then mature forms; finally old forms.

(b) Although rivers and valleys have been briefly considered in the introductory account of the lands in general, and although they have been encountered repeatedly in the accounts of the different kinds of land forms, a special subdivision may be well made for their fuller consideration. Here rivers and their valleys form the leading topic, the argument by which the subject is entered; and as such they may be presented in much greater detail than was appropriate when they were only secondary topics, as under land forms.

(c) The forms assumed by the waste of the land on the way to the sea merit recognition; they are fully worthy of an independent place in the scheme of treatment in relatively advanced study, although for more elementary work the topics of this subdivision may be distributed under others.

3. The consequences of special climatic conditions, dry and cold, deserve treatment apart from the consequences of normal climatic conditions; here deserts and glaciated areas may be placed. Any kind of a land form in any stage of sculpture may be now, or may have been recently, arid or glaciated; hence this chapter must follow those which discuss the sculpture of land forms in a normal climate.

4. The shore-line is best given a final chapter to itself, so that all kinds of land forms may be known when the work of the sea upon the lands is taken up. Shore lines should be classified first according to their original outline as determined by the kind of land form on which the sea came to lie when the present relative position of land and sea was assumed; and second according to the advance in the systematic changes that are produced by the action of the sea on the original outline.

19. *Principles of systematic physiography.*—There are several principles of importance to be observed in the treatment of systematic physiography.

The number of categories into which physiographic items are divided should be, as has already been suggested, greatly increased over the usual limit, and the categories should be treated as idealized

types as far as possible. Each category should be illustrated, if possible, by a type diagram, on which the essential features are clearly presented, and from which the unessential details are carefully omitted. Then, in order to connect the ideal with the actual, good examples of the various types should be instanced, the examples being selected chiefly from the home country, but without undue neglect of the rest of the world.

The various categories of the subject must receive explanation as well as description, because of the great aid that comes to the memory through the understanding, and because of the higher order of intelligence that is developed by a rational instead of an empirical consideration of things. Explanation has long been accorded to the phenomena of the atmosphere and of the ocean; it should be applied with equal care to the forms of the land. For this purpose it is necessary to accept in a more whole-souled manner than is customary among geographers the processes of deformation and erosion by which the lands are given their observed forms. It does not suffice to stop at small illustrations, such as sand dunes and gorges; the value of uplift in producing coastal plains, of deformation in producing block mountains, and of erosion in carving the uplifted forms, must be more fully recognized. It is chiefly by the adoption of this principle that the progress of recent years has been made.

It should be observed that, with the explanatory treatment, there comes a good share of deductive consideration, hitherto not consciously recognized as a part of the mental equipment of the geographer in his study of the lands. Although inference and deduction have been abundantly exercised in explaining the winds and the tides, it seems to have been thought that deduction had no place in the treatment of land forms. It may, however, be safely affirmed that, as a matter of good practice, deduction enters largely into any serious attempt at giving systematic explanation to plains and plateaus, mountains and volcanoes, rivers, valleys, and shore lines. This phase of physiographic study deserves careful consideration by those who wish to make the most of the newer methods.

Every category of physiographic elements should be accompanied by examples of the responses made to it by organic forms. It is not enough to take up the organic responses afterward; the habit must be formed of associating these responses with the study of the environing elements. It is too often the case that physiographic features are treated independently, as if they had no connection with the organic

world, even when such connection may be easily found. Such treatment does little toward the formation of the habit of bringing the two halves of geography into their natural relations. The usual treatment of the earth as a globe under the title of mathematical geography gives good illustration of unrelated physiography. It should always be pointed out, in studying this division of the subject, that the wide distribution of organic species is an immediate consequence of the globular form of the earth; for only a globular earth can have its surface so generally level as to permit organic migration over large areas. The restraining effect of mountain ranges as barriers should suffice to show how greatly the facility of movement from place to place over most parts of the earth is dependent on the surface of the globe being not far from level, when considered as a whole. Examples of organic consequences thus related to physiographic controls are the very life of the subject.

Finally, the various categories of physiographic elements should be arranged according to a reasonable system. The elements coexist in nature, but in our study of them their consideration must be linear, one after the other. There is today no generally accepted order of arrangement. For example, the School of Geography of the University of Oxford offers a long vacation course for the summer of 1902, including a series of lectures on "Types of Land Forms and Their Distribution," under which the following headings are announced: "Tablelands, Young Folded Mountains, Denudation Highlands, Plains, and Coastal Regions." Again, a committee of the New York State Science Teachers' Association has lately submitted a report in which shore lines follow the ocean and precede the lands. Evidently discussion is needed on this problem of arrangement in order to bring about some approach to a consistent system. Hence even so subordinate a matter as that of arrangement calls for more serious consideration by mature students than it has yet received.

20. *Regional physiography*.—The physiographic description of a limited region cannot be profitably undertaken until after systematic physiography has been well developed. It is true that the whole content of physiography consists of items gathered from definite localities, and that the parts must be known before the whole; but it is equally true that no well-ordered account of any region can be given until the given facts gathered from many parts of the world have been thoroughly discussed and systematized.

The regional account of Minnesota, for example, involves the position of Minnesota on the globe, and the place of Minnesota with respect to the general system of atmospheric movements, and thus draws something from the first and second divisions of systematic physiography, as above stated. It involves the existence of the state as part of a large land mass, and thus draws something from the general features of the large land masses; and with this goes the effect of a central continental position on climatic conditions. The further account of the state involves the description of all the different kinds of land forms within its borders; if these items are to be presented with best effect, they must follow an order that indicates their general relations, and this draws largely from the systematic study of land forms. It may therefore be urged that the mature development of systematic physiography will do much to advance the mature understanding of regional physiography, and that a student who has carried his systematic studies as far as the condition of the science allows, will make excellent progress when he turns his attention to the study of a limited area. There are, however, very few monographs by which the truth of this contention can be supported; there are, as yet, very few works in which the physiography of a region has been maturely studied in view of a well-developed scheme of systematic physiography.

21. *Relation of systematic and regional physiography.*—The older books on physical geography frequently contained chapters on the several continents, in which the attempt was made to present the actual distribution of the different kinds of physical features that had been briefly explained on earlier pages. The tendency today is to replace the pages formerly allotted to regional description with an extension of the pages allotted to systematic description, for the reason that no sufficient knowledge of the many kinds of things treated in physical geography can be gained if the actual distribution of the many kinds of things over the world is attempted. The increased attention thus given to systematic study is certainly an advantage, and, if the idealized types of systematic study are illustrated by a good number of actual examples from many parts of the world, the student will have no ground of complaint. It is as much a mistake to attempt regional physical geography in the year that is granted to this subject in the high school as it would be to teach the flora or the fauna of various countries in the year that is allotted to botany or zoölogy. All the trend of the newer teaching in the biological sciences is in the direction of a more

appreciative knowledge of typical forms, studied in view of their relations to large problems of growth, classification, and evolution. School study of the distribution of plants and animals is in danger of deteriorating to a mere study of names, and the same is true of regional physical geography. If the description of the continents is attempted in the year that is given to physiography in the high school, the time given to systematic physiography must be very insufficient, and the regional description must therefore be very defective.

There are, however, certain divisions of systematic physiography in which what seems at first to be areal or regional study is advisable; namely, the chapters on the atmosphere and the ocean. The reason for this may be easily seen. The greater features of temperature distribution, atmospheric circulation, rainfall, and climate are really parts of a physiographic phenomenon whose dimensions are as large as the earth. Like the earth itself, the atmospheric shell as a whole must be considered if we wish to acquire an understanding of the relations of its parts. We have but one atmospheric shell with which to deal, and hence the study of its parts, such as the trade winds, the subtropical belts, and so on, becomes specific and to that extent regional. In the study of rivers, on the other hand, there are many examples to illustrate the relations of the various parts—basin, divides, valleys, streams, flood plains, deltas, etc.—and here the treatment necessarily becomes general, with allusion to specific examples only as a means of illustrating general principles.

The atmosphere is not, however, treated wholly by the regional method; for like the parts of rivers which have small dimensions relative to the earth on which they occur, there are in the atmosphere also certain smaller phenomena of frequently repeated occurrence in place or time: these are always given a general instead of a regional treatment, and specific examples from particular regions are cited only as illustrations of the categories under which they fall. Land and sea breezes, mountain and valley winds, thunderstorms and tornadoes are examples of these smaller phenomena: no text-book attempts to describe them all.

It is the same with the ocean. As a continuous and remarkably uniform sheet of water, the actual ocean may be treated as a physiographic unit. Variety in composition, temperature, and movement is limited for the most part to its surface portion; and even here the distribution of temperature and the arrangement of the larger currents

are essentially symmetrical with respect to the equator, as if they were but parts of a large terrestrial phenomenon. When it comes to minor features like local currents, mention can be given to only a few typical examples, such as are afforded by the backset eddies between the Gulf stream and the Carolina coast, by which the cuspatc capes of that interesting shore line are determined. So with the tides: the unity of this terrestrial phenomenon and its relation to the moon and sun should be pointed out and explained; but the infinite variety of tidal details along the ocean shores can be taught only by means of type examples, each of which is chosen to illustrate a class of tidal movements.

Something of regional treatment may be given to the first subdivision of the chapter on the lands, for the larger continental masses are so few that they naturally take our attention individually as the individual planets take the attention of astronomers. On the other hand, the plan of continental structure and relief is so intricate that it is not yet well resolved even by the most advanced students; hence systematic physiography cannot dwell long on the large divisions of the lands. The continents are best studied under regional physiography.

22. *Systematic ontography*.—We may bring from the systematic study of physiography the conviction that a carefully arranged classification is worth the labor that its preparation has cost. The possession of a scheme of classification fosters the habit of referring newly found items to their proper place among their fellows. Items thus properly placed become much more valuable as elements of a well co-ordinated series than when arranged empirically, as, for example, in the order of acquisition. Let us, then, take up ontography with the intention first of seeking out all manner of individual examples of responses made by organisms to their environment, and then of arranging the examples in a logical order with respect to certain general principles. Thus arranged, similar items are soon generalized into categories, each one of which is described as a type, rationally explained in relation to the factor of physical environment that has produced it, and illustrated by specific examples. There can be little question that the subject will grow rapidly if it is thus cultivated.

It is to be noted that the classification here proposed deals with organic responses as effects, and that the physiographic causes therefore enter only secondarily. In systematic physiography, it was the

causes or controls that were classified, and the organic effects came in secondarily. Thus the threads of physiography and ontography run different ways; they are the warp and the woof whose close interweaving shows us the plexus of relationships that constitute the content of geography proper. On whichever series of considerations one may begin, he will be led over the whole subject if he follows the series to its end.

The chief writer on what I am here calling ontography is Ratzel, who has given an elaborate discussion of human conditions in relation to their surroundings in his *Anthropogeographie*. The subject deserves an even more general and more systematic treatment than it there receives. This is not the place to set forth its many divisions, but I may be permitted to indicate briefly some of the more striking ones.

Every organic species may be considered as possessing certain structures, as carrying on certain habitual life processes, and as occupying certain habitats. Many of the structures, processes, and habitats are responses to physiographic causes; as such they enter into the content of ontography and indicate its three chief divisions. The light bones and feathers of flying birds are a response to their flight through the unsustaining air. The torpidity of many animals during winter is a response to climatic conditions. The division of a genus into several similar species on the different islands of an archipelago, as in the remarkable case of the cassowaries, is the response to the production of the islands by the partial submergence of a once continuous area. Numberless instances of these kinds might be cited.

Each of the three divisions of ontographic responses is of two kinds; the responses of one kind are brought down as inheritances from beginnings in an earlier time, maintained today because their physiographic controls are persistent; these are the more numerous (except, perhaps, as regards habitat). The responses of the other kind are of recent development, and are therefore the more immediate material of ontography. Those of the first kind are, however, only less directly pertinent to ontography, for they are the responses to the palaeographies of geological time, and can be cut off from those of today only by an arbitrary separation.

The most important inherited responses are those determined by long persistent conditions of environment, such as are common to the physiographies of all ages. The habit of breathing oxygen, for example, universal among plants and animals, may be reasonably

regarded as a response to the widespread occurrence of this gas, uncombined, but active in entering into combination with organic substances, whether it is dissolved in the ocean or free in the atmosphere. A great number of animals have a dorsal and a ventral portion, and an arrangement of skeleton and muscles with respect to the vertical line of gravitational force. This is evidently the result of living on an earth whose mass greatly exceeds that of the organism. Escape from responsibility to omnipresent gravity is possible only for those forms whose density equals that of the medium in which they live, as with many marine animals, or whose minuteness makes them the play of every passing breeze, as with innumerable microscopic organisms.

The difference of coloring of the ventral and dorsal surfaces is the response to the external source of the light by which the earth's surface is illuminated. The downward growth of plant roots and the upward growth of stems seem to be responses both to light and to gravity. All organs of sight, voice, and hearing appear to be responses to physical properties of environing media. The development of these organs has been slow, but, once developed, their profit has been so great that they have been persistently inherited wherever the conditions under which they were developed have endured. Sight is the means of taking notice of the bundle of strongest solar radiations directly incident upon or reflected to the organism; it is given up after being once acquired only by cavern animals living in total darkness. With the development of sight on the part of pursuers, there seems to have come the device of invisibility on the part of some of the pursued, as with those transparent marine organisms that so perfectly imitate the invisibility of the water in which they float. Hearing is the device for taking note of the air or water waves that are excited by some neighboring disturbance. Voice is rarer than hearing, and seems to be especially associated with the organs for air-breathing in the higher vertebrates.

The list of responses of this kind, stated in association with their causes, would be very long before it was complete. There is today, unhappily, no place where the list is to be found on record. All the examples of responses given above may be connected by a continuous series of other examples with the most modern and commonplace illustrations of geographical relationships. It is only under the most arbitrary ruling that the immediate, simple, and manifest responses are considered pertinent to geography, while the remote, complex, and

obscure responses are referred to some other science or neglected altogether. The resort to talus crevices for shelter by beasts, and to over-hanging ledges by man; the use of mud by wasps, of twigs by birds, of wood, stone, or ice by man in building shelters; the housing of colonies of bank-swallows in sand banks and of communities of Chinese in loess bluffs; the settlement of beavers on watercourses, of men at fords and harbor heads; the gathering of a manufacturing population about the water-power of modern Niagara; all these are examples of the ontographical habit that organized beings have of taking advantage of their surroundings. All the content of economic or commercial geography, whose modern development is of so promising an interest, is but a manifestation of a special phase of this universal habit. It is of course desirable to select the simple, the manifest, or the "important" for exposition in elementary teaching; but the mature geographer can be satisfied with no such arbitrary bounds for his study.

The location of roads between neighboring villages on a plain, of highways over passes, of tunnels through mountains, of ship channels in harbors, offer many examples of responses to physiographic controls. The course of the paths beaten down by wild animals in the jungle, of the trails worn by cattle on their way to the rare watering places of arid regions, of the lanes followed by pillaging ants, offer equally good, although less conspicuous, examples of the same kind. The fleetness, the endurance, the venom, of the animals of arid deserts have been instanced as striking examples of responses to an environment where the maintenance of life is difficult. The spirit of independence characteristic of the Swiss has been regarded by one writer as the cause of the maintenance of independent organization even in very small village communities; but it has lately been shown by Lugeon that the physiographic conditions inherent in valleys among lofty mountains are such that only small villages can be developed; and thus interpreted the spirit of independence must be regarded as the result of the ontographic subdivision of Swiss settlements into small villages. The growth and distribution of plants of different kinds, as influenced by rocky surfaces, composition of soil, depth and abundance of ground water—problems of modern ecology—are all of as strictly a geographical nature as is the distribution of human populations, and all may be treated systematically or regionally.

Ontography should be pursued even into forms of language and habits of thought. It is well known that mountaineers have a greater

number of terms for peaks, ridges, and passes than are to be found among the inhabitants of plains; that dwellers in the deserts find need of giving different names to various kinds of sand dunes, while the people of a moister climate get along very well with only one. "The river of life" and "the valley of the shadow of death" are figures of a manifestly geographical origin, while "amount," "insulate," and "isolate" involve somewhat concealed geographical figures; but the origin of "rival," "derive," and "arrive" in a geographical root would be hardly noticed by anyone but a philologist, yet these words certainly serve to show the importance that has long been given to the shore line that divides land and water. In how many other ways language is ontographical, no one has yet learned. Fewkes has shown how largely the religious ceremonial of certain Indian tribes of the arid Southwest is based on climatic conditions; thunder clouds and lightning flashes are conventionalized in religious decoration. We are perhaps prepared to ascribe the simple religions of pagan savages in greater or less degree to physiographic sources; but it seldom occurs to us that the position and the character of the heaven and the hell that are so closely bound up with the faith of many a Christian are of an equally physiographical origin. The ontographical half of geography will have abundant material when it is taken up for serious study by mature students.

The content and treatment of courses on regional ontography can be inferred from what precedes; they cannot be detailed here, for lack of space, but they would include all that is commonly understood by political and commercial (economic) geography, along with a greater emphasis on the relation of these effects to their causes than is commonly allowed.

23. *Systematic and regional geography.*—Systematic geography is the orderly study of the relations between all the categories of physiography and ontography. Regional geography is the orderly study of all these relations that are manifested in a limited area. It would be premature to attempt now to state the order in which the categories of geography, thus understood, should be taken up. That is a matter which may well engage the attention of mature geographers for some time to come without exhausting the discussion that it deserves. My object in devoting a paragraph to the heading above is to reiterate the necessity of carrying forward mature geographical study toward the goal here indicated, as a practical means of improving the condition of geography in the schools. The elements of the subject, most fit for

presentation in the schools, cannot be determined until the subject, as a whole, is more thoroughly discussed than it is today; and the presentation of the elements cannot be of the best while the teachers, as a rule, have a knowledge of the subject that is as far below the capacity of their years as is now generally the case.

24. *Relation of mature geography to school geography.*—I have made free in the foregoing pages to consider the higher reaches of geographical study, because it seems to me otherwise impossible to make wise plans for the lower reaches; but, in order that this paper shall not be concerned too largely with questions that may seem almost transcendental, it may close with what may be popularly called a few "practical suggestions," though, for my own part, I believe that all the suggestions here made have a practical bearing on school teaching.

25. *Better preparation of teachers.*—One of the most direct results that would follow from the more general pursuit of geography as a mature study would be the improvement in the preparation of teachers. This is an improvement that is, according to my experience, sadly needed. The acquaintance that I have made during a number of sessions of the Harvard summer course in geography has convinced me that teachers of geography are by no means informed up to their capacity even concerning the elementary aspects of their subject. The idea that most bays are merely drowned valleys is a surprise to many teachers; the idea that a river which exhibits the "normal" sequence of parts usually described is a mature river, and that young and old rivers must normally have a different arrangement of parts, is a novelty to them. The widespread distribution of species and the extended development of commerce have seldom been considered rationally as the responses to the opportunities for movement offered by a globular earth. The division of mankind into races has been usually treated empirically, instead of as primarily a response to the continental division of the lands, and secondarily to important mountain and desert barriers. There is no lack of a conscientious desire nor of a capacity to learn; but the conclusion has been forced upon me that many of the teachers whom I have met have been intellectually half-starved in their previous study of geography; and yet the teachers to whom I refer may be fairly considered as of better than average quality, for the very reason that they have spent their summer vacations in trying to make themselves better still. It is not necessary to inquire here into the causes of their deficient training, but the

remedy of the deficiency may be looked for with much confidence in the elevation of the general status of geographical study that would accompany its habitual treatment by specialists in colleges and universities. It is important to emphasize in this connection the need of a broader and higher preparation for teachers, so that they may know a good deal more than they have to teach, and thus gain the easy mind that characterizes the proficient expert. The recognition of geography by colleges and universities will, I believe, do more than anything else to realize this desirable end. The individual teachers who may read this paragraph will not be able alone to exert much pressure toward a change to a better order of things in this respect; but the organized body of teachers and superintendents that constitutes the National Educational Association can do much in this direction, if they are once fully persuaded of the need of doing it.

26. *Better equipment of geographical laboratories.*—It is not so very long ago that physical and chemical laboratories were unknown even in the best secondary schools. The rapid development of observational and experimental teaching in these subjects makes me hope that the time may not be long distant when the best high schools will, as a matter of course, be provided with a room that may properly be called a geographical laboratory, and that this room will contain a good working collection of material for the observational study of geographical problems. Some such laboratories already exist. As strong an organization as that of the New York State Science Teachers Association has favorably considered the appointment of a committee to prepare a report upon the proper equipment of a geographical laboratory; and a collection of materials for geographical teaching has lately been exhibited in Iowa. All this may fairly be taken as a hopeful sign of the times. When the grammar schools take up the idea of practical work in geography, the matter of laboratory equipment will become of so large commercial importance that publishers will enter the field; and the walls, racks, and tables of the school-room will not be so bare as they are today. But it is evident that the better preparation of teachers must precede the fuller equipment of laboratories, and that the teachers must have become familiar in their own training with the use of abundant laboratory materials, such as should be found in institutions of higher learning, but such as are today too generally wanting even there. Among the materials most needed are wall maps, not merely of climatic elements, of oceans, and

of continents, but of typical features of continents also ; good pictures and maps of the actual examples by which type forms are illustrated, models of land forms, lantern slides in large variety, well-selected series of weather maps, plentiful large scale topographical maps such as are published by our various governmental bureaus, and so on. Those who are known to have gathered together a laboratory equipment of this kind are frequently in receipt of letters from superintendents and teachers, asking how the collection may be duplicated ; and the letters are difficult to answer, because the collections have been brought together piecemeal. But it is a hopeful sign that dealers in lantern slides are getting out catalogues of subjects especially selected for the illustration of physical geography; and the coming decade will undoubtedly see further progress in this line. Yet here again it will only be a repetition of the experience in physics and chemistry, in botany and zoölogy, if the laboratory equipment for teaching geography in schools is largely developed in the more fully furnished laboratories of our colleges.

27. *Replacement of items by generalities.*—The hopeful progress that school geography has made in the last twenty years is characterized largely by a diminution in the number of isolated empirical items to be committed to memory, and by a corresponding increase in the number of principles and generalizations to be intelligently studied. There is no reason for thinking that this progress has reached its limit ; there is, on the other hand, much ground for believing that, as the teachers and the teachers of teachers of geography gain a larger and broader understanding of the subject in its mature development, the replacement of the lonesome empirical item by the rational category, under which the items are grouped in good fellowship, will continue to increase beyond its present moderate measure. Items must still be presented in abundance, for young pupils need plenty of specific information ; but the items should be introduced in illustration of the categories to which they belong, rather than as sufficient unto themselves. In the earlier years of school study, the items ought to precede the category and the generalization, for first progress must be largely inductive ; but, by the time that the high school is reached, and probably for a year or two sooner, deduction may be used to a significant extent ; that is, the generality may be presented first, and the items may then follow as deductions from it, instead of preceding as elements of its induction. Many teachers are already using the deductive method in teaching the

distribution of wet and dry regions as determined by the relation of mountain ranges to the terrestrial wind system ; and the success of the method there testifies to the success that may be expected in other cases where the mental processes involved are of a simple and safe order. This matter deserves more emphasis and amplification than I can give it here ; suffice it to say that geography will become more and more a scientific study in proportion to the use that is made of the fully developed scientific method, which always involves deduction along with induction in treating problems where any of the essential facts are unseen.

As geography becomes rational, the purely *memoriter* method will hold lower and lower rank in its lessons. Such a topic as state capitals, learned in old-fashioned days as a monotonous recitation, may be enlivened by an enlarged treatment in which many other facts than mere name are associated with the capital city. Many of these peripheral facts may be forgotten, but the central fact will remain more firmly fastened in the memory than if it had but one empirical attachment. So with state boundaries ; the mere recitation of boundaries, apart from the geographical relations of the boundaries, is dull work ; dull in the book, dull in the teacher, dulling in the pupil. Instead of having such matters learned as mere feats of unreasoning, unassociated memory, they should always be combined in a rational way with other things, so as to make for intelligence, and to develop in the pupil the habit of looking for the meaning of things, instead of dulling or even repressing that excellent habit. When rivers are taught only by name and place, it must be that little more is said about them in the text-book and known about them by the teacher. It is very questionable whether it is worth while to use any share of school hours in learning so slender a geographical item as the mere name of a river. It would be much better to omit altogether the account of a country that is thus treated in earlier school years, and to take it up for the first time when its general geography is treated in such a manner that mountains, climate, rivers, products, and cities are properly associated. It is well known that the best schools are making excellent progress in such lines as these ; but it is not yet time to flatter ourselves that pressure toward such progress is unnecessary.

28. *Geographical facts must be made more real.*—I recall the true story of a little girl learning her lesson in a question-and-answer geography. Ques. “Do the stars shine by day as well as by night?”

Ans. "They do." The little victim was seen rocking herself to and fro, as if to give even a muscular aid to her memory, and repeating, "They do, they do, they do—they do, they do, they do." The theory of teaching has far outgrown such absurdities, but the practice has not, and we must continue to protest against them. I have in my own experience seen members of a class of teachers try to answer the question : "Why are the days longer than the nights in summer?" by recalling the words from some printed page instead of by attempting to visualize the plain facts of nature. The moral of this is that the facts of geography must be made more real than they can be by studying only the words of a book. All sorts of observational devices must be summoned to the aid of the printed page. The importance of this principle will be more fully realized when it is recalled that children can know much more than they can say ; that their power of observation is far greater than that of expression ; and that equality of these two powers is not always reached even in mature minds. In order, therefore, that the little that young pupils can say about geography should be properly proportioned to their whole mental acquaintance with the subject, they should be provided with material, especially with material for observation, in much larger quantity than they are expected to recite, and in much more realistic form than mere names and definitions of unknown things.

Yet such is our servitude to conventional methods that we constantly fail to teach by things ; the teaching by words is so much easier. Consider, for example, the rotation of the earth. What is simpler than to observe in an effective manner the elementary facts upon which this extraordinary conclusion is based, and yet how few school children ever learn these facts by well directed observation before they learn the verbal statement of the conclusion printed in a text-book. There is no inherent difficulty in having the necessary observations made by school children at different hours during a two-session school day ; particularly that most significant observation, that on the second day the sun can be seen to approach from the eastern side of the sky the position that it had in the sky twenty-four hours before. Again, with latitude, in how many schools of our country are the necessary facts taught by observation before the terms are introduced, and definitions are memorized? Yet here induction is surely the safe and sound method. I am convinced that the vagueness of popular understanding about things of this kind comes from an over-emphasis of verbal defi-

nitions in school years, while facts easily observed are under-emphasized. It would be well to replace the names, diameters, and distances of the planets—matters of small geographical import in any case—with the observational proof that there are planets—other earths—to be seen in the sky, and that young observers can easily follow them among the stars. All these errors of method would be reduced or excluded if the teacher were perfectly easy minded on such problems; and the easy mind is best gained through practical acquaintance with observational methods such as should characterize the more mature stages of geographical study.

Geography indoors should be as largely as possible supplemented by outdoor observations by the pupils; yet I have found a great difference among teachers as to outdoor observation, even on their own part. They may have learned very well indeed everything that a book has to say about the origin of valleys; they may profess belief in the destructive work of the streams that flow through the valleys; yet, when it comes to taking a class of children outdoors and using the examples of geographical forms, such as the neighborhood affords, there is too often an undue hesitation. The teacher's lack of self-confidence would be greatly diminished if her own school work had been more liberally guided, and if her days of professional preparation had been spent in the consideration of a decidedly more mature phase of geography than that on which her skill is afterward to be exercised.

29. *Laboratory exercises must be specific.*—With an increasing realization of geographical facts will come an increasing accuracy and definiteness of knowledge about them; and this will be a great advance, for at present geographical ideas are apt to be hazy. My recent experience with Harvard admission examinations in physiography leads me to fear that pupils in secondary schools do not look upon this division of geography as capable of clear statement, such as they know is expected in Latin and geometry. The answers to such a question as, "Describe and show by diagrams the development of a valley and its flood plain from a young to a mature stage," indicate too often a vagueness of understanding that is extremely disappointing, the more so in that it reflects imperfect methods of teaching as well as of learning. The correction of this difficulty is not to be secured by insisting on precise verbal recitations from the text-book, any more than similar difficulties in geometry would be overcome by insisting on verbatim recitation of theorems. The needed reform will be

found in realistic exercises in geography corresponding to blackboard demonstrations and graphic constructions in geometry. But it is essential that the realistic exercises in the geographical laboratory should be carefully planned, in order that they should be closely pertinent to and illustrative of the text, and that they should call for accurate thinking and performance on the part of the pupil. The elaboration of a series of fifty or more such exercises in physiography is greatly needed ; and those who have experience in work of this kind should be encouraged to give specific account of their methods in some of our educational journals, or, better yet, to prepare laboratory manuals in which explicit directions shall be given as to outfit and process. Among the simplest and at the same time most valuable exercises of this kind for the chapters on land forms, mention may be made of the drawing of outline maps from block diagrams of typical forms. The block diagram being an oblique bird's-eye view, and the map being seen from directly overhead, there is just enough difference between the two to require intelligence in changing the diagram to the map, and yet not to demand more than elementary geographical knowledge and simple manual skill. Maps thus prepared should always be accompanied by a descriptive and explanatory text.

Laboratory exercises should not be limited to physiography; they should be devised for all divisions of geography, for the devices by which the reality of geographical items and the truth of geographical principles are to be impressed on young pupils cannot be compressed into a text-book. They are the peculiar responsibility of the teacher and the laboratory. Just as the breadth of opportunity in a university increases with the abundance of its funds, so the variety of devices by which school children are aided in their studies will increase with the liberality of a teacher's preparation. One of the most promising of all methods towards escape from enslavement to verbal texts is the cultivation of a body of higher learning, and the encouragement of teachers to acquire larger and larger part of it, however elementary their later teaching may be.

30. The rational element and the disciplinary value of geography increase together.—It is very likely that one of the reasons for the general omission of geography from the list of college studies is that it does not, as ordinarily treated, afford sufficient intellectual discipline to gain a place among other subjects whose value in this respect is held to be greater. It is noticeable, however, that physical geography has a

more general representation in colleges than any other branch of the subject. Hence it may be expected that other branches will gain a place as fast as they prove themselves worthy of it, by showing that they may be as disciplinary and profitable as physical geography is. However this may be, there can be no question that the disciplinary side of geography deserves more emphasis than it has usually received in school teaching. The remarks made above as to the rank of the "tier of counties" question are pertinent to this paragraph also. There is every reason to hope that, commensurate with the development of a body of higher learning in geography, there will be an increase of the disciplinary value of school geography. Let it not be forgotten that good progress in this direction is already being made. The intelligent use of weather maps, for example, is a case in point. No wide-awake teacher of physical geography today can be content without using a series of actual weather maps in illustration of weather types; the exercises that may be based on these maps are disciplinary in a high degree. The records shown on the maps may be given a real value by comparing them with local school records. The discussion of the map records offers admirable training in induction, generalization and deduction. Exercises may be made of a very practical kind, training the hand in construction and the mind in expression. The knowledge thus gained leaves little room for credulity in a subject where credulity has long flourished. How different all this is from the old-fashioned empirical description of weather changes! Studies of this kind inculcate a really scientific method; they make for intelligence as against mere docility; they aid in opening a broad understanding of the processes of nature; and yet accessible as weather maps are today, simple as are the methods of their practical disciplinary use, it is rarely the case that they are used to their full value, even in high schools, much less in grammar schools.

Every good thing that may be said about weather maps may be said with equal value about studies of land forms, provided the study is based on laboratory material as appropriate to the needs of this division of geography as weather maps are to the other. But while weather maps are very generally available, models of land forms are relatively rare and expensive. The most disciplinary results in this division of the subject must therefore wait until models are made and used in greater number in college teaching, until the teachers of teachers become familiar with the models during their college course,

until the intending teachers of geography are made acquainted with a good variety of typical models in their own high school and normal school course, and until the models themselves are demanded for the future geographical laboratories in high schools and grammar schools. It is largely for the National Educational Association to say whether our great-grandchildren or our grandchildren or our children shall be the beneficiaries of such improvements as better laboratory equipment will aid in bringing about.

31. *Certain parts of geography are not presented in good sequence.*—With the various improvements already noted, we may expect to see a better sequence established in the order of introduction of certain elements of geographical study. As the rational method is further developed, there will be a decrease in the number of things that are empirically introduced on account of their asserted importance, even though they must be given an empirical instead of an explanatory treatment. It may be going too far to say that this class of topics will ever be as completely excluded from geography as it is from such purely deductive studies as geometry and algebra, where no one pretends to introduce a theorem or a principle before it can be logically approached by a series of preparatory steps; yet it should be noted that in subjects such as physics and chemistry, where inductive and deductive methods are combined, the sequence of topics is logical—hardly less logical than in mathematics. It is not customary to make an empirical statement concerning entropy in an elementary text-book on physics, however important the principle of entropy may be to the more advanced student. Again, a careful selection of things to be studied is noticeable in the modern books on botany and zoölogy, although this method involves the omission of all mention of many plants and animals that were formerly included in more comprehensive texts on natural history; this is because a real knowledge of a few things that may be studied observationally is held to be of greater value than a nominal knowledge of a greater variety of things.

Certain divisions of geography seem to be in need of a critical examination as to the logical sequence of their parts. There are at present too many instances in which the introduction of a topic seems to be more indicative of a desire on the part of the author of the text-book to display his knowledge than of a judicious estimate as to what is appropriate to the pupils who are to use the book. The treatment

of the tides sometimes offers illustration of this difficulty. It is as if the author felt bound to make mention of certain facts or theories because of a supposed public or scientific demand for them, even though they may involve principles which the pupils who are to use the book cannot be expected to have learned. The theory of the general circulation of the atmosphere and the effect of the earth's rotation on the course of the winds afford similar instances of the attempted introduction of relatively advanced explanations into elementary texts, because of a supposed conventional or popular demand for them. A way out of the difficulty in these cases may be found by touching very lightly on the more involved parts of the explanation, and by replacing the more difficult parts with a selection from the abundant matters of fact which can be easily apprehended, and which go far toward forming a sound basis on which real explanation may be based in later years.

The flattening of the earth at the poles is given an exaggerated importance by being included in the first account of the globular form of the earth. The explanation of the seasons is often attempted before the pupil has gained any inductive basis for the capital fact of the earth's annual revolution around the sun. Latitude and longitude are as a rule introduced too early. The methods of finding latitude that are sometimes taught include data empirically provided by the teacher. Rearrangement is needed in all such cases if geography is to become largely disciplinary.

32. *Distribution of the divisions of geography in secondary schools.*—General descriptive geography, which constitutes the body of the subject in the years before the high school, need not be subdivided according to the scheme of classification of the divisions of geography given above. It makes a beginning in all of the divisions. As at present conducted, good progress toward better methods is everywhere noticeable, but there is still room for a greater development of systematic, explanatory, and realistic treatment, as has been indicated on the preceding pages. Change in the order of parts is not seriously demanded; change in the proportion and emphasis of parts is going on in a wholesome manner, and largely in the direction here advocated. Among the results of these changes is a possible saving of time by the omission of unnecessary details, so as to permit the introduction of elementary systematic physiography in the last year before the high school. There are many reasons for this change, which I

have elsewhere set forth at some length;¹ but it may be here noted that the change would have the beneficial result of presenting some of the outlines of physiography to a greatly increased number of school children; and if the subject really has the educational value that is claimed for it, this would be a national blessing.

High-school geography should be of two kinds. If the feeding lower schools do not provide a course in elementary physiography, then the high school must provide it, and by preference in an early year. If no special course on regional physiography, such as the physiography of the United States or of North America, is offered, then the systematic course should give as many specific illustrations of its categories as possible. In the necessary absence of a course on systematic ontography in secondary schools, ontographic responses should be liberally introduced in connection with their physiographic controls. If, on the other hand, the high school is served by lower schools in which a good course on elementary physiography has been given by well-trained teachers to well-trained pupils, then the high school has manifestly two courses to offer. Regional physiography of the United States may be introduced in an early year so as to precede a later course in commercial geography, in advanced systematic physiography, or (should the subject approve itself when tried in colleges) systematic ontography.

The early regional course should be liberally broadened by including mention of features like those of the home country, but situated elsewhere in the world, and by abundant mention of organic responses to local physiographic features. It could thus be made disciplinary and educative in a high degree. The course on commercial geography is, if well founded on earlier physiographic courses and well developed in view of systematic ontography, destined to take an important place in the schools; but it must carefully avoid the danger of introducing too much empirical detail.

The course on more advanced systematic physiography could, if placed in a late high-school year, reach a stage of relatively rigorous discipline, for the inculcation of which more serious books, as well as better-prepared teachers and better-equipped laboratories, would be needed than are to be found today. If these suggestions seem visionary, one need only look at the extraordinary progress made in the last

¹"Physical Geography in the High School," *School Review*, September–October 1900.

fifty years of our school history to count upon the realization of all these schemes in the next fifty. It goes without saying that the courses thus instituted should be so well taught that they could be built upon by still more advanced work for those students who go to college.

33. *Educational value of geography.*—There are two different standards by which the value of a school study may be measured. One is the so-called practical standard of use in life-work; the other is the more intellectual standard of capacity for enjoyment. There is no danger that this practical nation, with its marvelously rapid material progress, will fail to give due prominence to the practical side of school studies; there is some danger that the intellectual side may in a measure be neglected, from the very magnitude of our material prosperity.

The practical side of geography is best taught in a well-developed course of commercial geography placed in the later years of the high school, after earlier courses on general geography in the grades, and a course on elementary physiography either in the grades or in an early high-school year, as above suggested. Here, if anywhere, is it important that the principles of systematic ontography, developed as they should be by collegiate and university study, ought to find application. If commercial geography is to gain the place it deserves, it is of vital importance that it should be rationally taught as that part of regional geography in which man, the trader, responds so marvelously to his environing conditions. We have only to regret that the keen practical intelligence, by which the successful American of today has so greatly magnified the share taken by our country in the commercial geography of the world, finds so many analogies in the habits of the predatory species of the lower animals and in the behavior of the robber barons of feudal times. This suggests that commercial geography should be paralleled by a good course in ethics.

The intellectual profit of geography comes from the enjoyment that every active mind finds in really seeing the facts of the world about him. The great pleasure that has come to thousands of us, young and older, in recent years from the observational study of birds demonstrates the capacity, hitherto latent in that respect, of the average person for a high measure of simple, unpractical intellectual enjoyment. A corresponding pleasure is in store for those who learn, see, and appreciate the abundant facts and relationships of geography, many of which must enter into the experience of every life. If the

possibility of making a happy adjustment of oneself to his environment comes with the better appreciation of the order of nature, so much the better. It is evident, however, that the enjoyment of the opportunities of mature life will not have been increased for those whose school geography was merely a study of words in a book, or of names on a map, rather than of the meaningful facts of the world. Hence the intellectual no less than the practical value of geography will depend largely on the excellence with which it is taught.

THE RELATION OF GEOGRAPHY TO THE SCIENCES.

By HERBERT M. WILSON,
United States Geological Survey.

We are passing through a period in which methods of business, of education, and of government are rapidly developing. From the centralization of many diverse units under one administration, as in the change from the college to the university, from the company to the syndicate, from the kingdom to the empire, there results a broadening of interests. But this very aggregation of interests and power gives opportunity for, and demands, more detailed study and more careful management of the component parts. The small college, at which only a few general branches of learning were taught, is giving place to the greater university, in which all branches of learning are represented and yet the minutest detail is taught in each specialty. The individual owner of the blast furnace or steel-rail mill is being replaced by the great syndicate, which mines the fuel and the ore, transports them to the mill, and works the product of the latter into finished commercial form; yet the very magnitude of the syndicate's interests results in the more scientific development of its resources and products through the medium of trained specialists, who supervise the details of every branch of its industries.

This spirit of the times is expressing itself in discussions by our educators concerning the place of geography among other sciences. That the reaction on geography of the study of other branches of science has led to discussion of this subject is good cause for congratulation.

Some regard geography as scarcely a composite science, but only a mosaic of others, having little right to a place among such specialized sciences as geology, astronomy, botany, ethnology, etc., from each of which it borrows something. Others conceive it to be one of the general or administrative sciences, correlating the truths of the more detailed sciences and knitting their results into a harmonious whole.

It will be well, in the beginning, to recall the derivation of the name and to observe the danger of a too literal translation. "Geography" has generally been held to be a "description of the earth," and as

such even the first of great modern geographers, Alexander von Humboldt, considered it. He was probably the first to point out that the different special natural sciences needed to be supplemented by a generalizing science which should bring together the isolated results of the others and trace from them the general features of the world. He said that the results of scientific research should be considered in their vast relations to mankind, and showed that geography does this. More recently Karl Ritter, another of the founders of the modern German school of geography, has adopted as a liberal translation of "geography" the word *Erdkunde*, which may be defined as "knowledge of the earth." By this he means that geography is not so much a mere description as a subject full of scientific problems requiring solution.

Lieutenant-General R. Strachey, one of the pioneer Englishmen in modern geographic methods, has said: "I therefore claim for geography, in the sense that I have spoken of it, a place among the natural sciences, as supplying the needful medium through which to obtain a connected and consistent conception of the earth and what is on it, on the importance of which I have already insisted. In this respect the position of geography may be looked on as analogous to that of mathematics." Another Englishman, Professor H. F. Tozer, who is primarily a student of the historical side of geography, claims that geography "is the most central in its position of all the sciences, standing as it does half-way between history, sociology, and the other studies which relate to man, on the one side, and those which deal with the composition of the earth, which is his dwelling-place, such as geology, on the other; so the history of geography, especially that of its earlier stages, when these cognate subjects were still in their infancy, is fruitful in information relating to them." Still another English geographer, Professor E. C. K. Gonner, in considering commercial geography, describes geography as "a study of the environments of man." He holds that its function is to observe, arrange, and describe the physical conditions under which man lives, and to indicate the part which these conditions play in determining the course of his development and the nature of his occupation.

Finally, reference might be made to the writings of Powell, Richterhofen, and Davis, among the more prominent of the modern school of so-called physical geographers, in which may be found conceptions of geography in its special relation to geology and meteorology; or to the writings of Réclus, who emphasizes the ethnologic side of

geography, and of Freeman, who has shown it to be the most important factor in the history of nations.

The student will thus discover that geography is not merely a patchwork of other sciences, but that, as a rule, each geographer is a specialist, who, while indicating the relations of his favorite specialty to the other sciences, magnifies his own, be it geology as with Suess, ethnology as with Réclus, political geography as with Ratzel, historical geography as with Tozer, or commercial geography as with Gonner.

So it has ever been with each of the more restricted sciences. Not so very long ago geologists based their lore on biology, and palæontology was the keystone of their theories and their measure of time. They then took up the dynamics of geology and founded their pet theories on vulcanism. Now they have become geomorphologists, and the surface or physiographic forms, as produced chiefly by erosive action, are the key by which they unlock hidden mysteries. The lithologic composition of the rocks, revealed by the microscope, furnishes their basis of classification and measure of time. Hence the modern school of geologists, recognizing the geographic (topographic) side of their science, are trenching so closely on the domain of what they conceive to be geography that many of them have come to believe, as do some historians, meteorologists, and ethnologists, that the science of geography has ceased to exist.

This brings us to a realization of how imperfectly the true meaning of the term "geography" is as yet understood, not only in our own country, but even in Germany, the most advanced of all countries in geographic teaching. It is the geologists whom we must gratefully credit with having forced the issue, through mistaking one of the components of geography, namely topography, for the whole, and thus limiting the science to its orographic phase. This is clearly shown in the statement made before this association last year by Professor W. H. Norton, who aptly characterized the new geologic cult, geomorphology, as "the child of geology and geography," and who properly decided that "the overlap land of geomorphology may be claimed by geology with as sure a right as any of its other provinces, such as palæontology." If we substitute here for "geography" the name intended, "topography," and also in his question, "Should land forms be taught in high schools chiefly as physical geography or as geology?" substitute for "physical geography" "topography," we arrive at a true conception of the difficulties raised by topographic geologists, if I

may so characterize them. It is worthy of note that Professor Norton says of this predominant influence in present-day so-called geographic thought that the "professors of physical geography belong, notwithstanding, to the brotherhood of the hammer." It is but natural that the leader in this school, Professor W. M. Davis, should, in his admirable treatise on land forms, unconsciously realize the narrowness of the physical side of geography alone by pointing out the application of the science to the life of plants and animals and of man, thus placing himself among the first of his cult to appreciate that geography is something more than geomorphology.

The true place of geography has now been indicated, though few geographers have been or will be so comprehensive of grasp and so broad in culture as to compass the whole subject and favor no specialty. Dr. Wm. T. Harris, United States commissioner of education, best indicated the full scope of geography as a science when he wrote: "Geography unites the study of the natural elements, land and water, climate and productions, with the study of man's present conquest and use of the same." Professor Tozer, in the statement previously quoted, characterized geography in similar terms. The Committee of Fifteen also indicated in their report the important position of geography among the sciences when they referred to it as one of the most important of all branches taught in the common schools, "a composite science or conglomerate of several sciences united with several arts." This last phrase clearly indicates that geography is an intermediary science—that its true functions are to correlate the sciences—physical, natural, commercial, historical, and mathematical—with the arts. It is indeed true that one of the interests in the many-sided science of geography is lost if the student limits his investigations to the surface of the earth and its envelopes of air and water, and fails to consider the human side—the relation of man to his habitat, and its reaction upon him, as shown in the social and political history of the race. As Humboldt has expressed it, "the unity of a physical description of the world is no other than that found also in the study of history." Both are exact sciences, dealing not in doubtful premises nor dependent on unproved theories, but founded on facts empirically determined.

As recently pointed out by Dr. Martha Krug Genthe, "the geography of plants or animals is, then, as different from descriptive botany and zoölogy as the geological knowledge of the earth is from

mineralogy." Hence the physical description of the world by a geographer of Humboldt's type is "not to be confounded with a so-called cyclopædia of natural sciences." In such geographic writings details are studied only in their relation to the whole as parts of the world's phenomena. In refutation of the charge that geography is but "an agglomeration of fragmentary knowledge borrowed from a dozen other sciences," the same writer has well shown that there is "no science now known in which one mind can have an equally complete command of all subdivisions; even the greatest men in medicine, zoölogy, history, etc., are specialists in some definitely limited areas." Hence a physician is still a scientist, though he be not a specialist in laryngology or gynæcology; and a place in science is granted to the geologist, though he be not a palæontologist.

Perhaps the relation which geography bears to kindred sciences may be best likened to that borne in these days of specialization by civil engineering to allied branches of the engineering profession. The assertion is frequently made that the parent profession, civil engineering, has ceased to exist; that it is but a hash of its component specialties—hydraulic, sanitary, topographic, railroad, bridge, mining, electrical, and mechanical engineering—from each of which it borrows a little. The absurdity of this becomes evident when we consider that the electrical engineer who builds a rural trolley line or develops electric energy from water power, and the mining engineer who drives a tunnel or constructs a tramroad, may with equal truth be said to be practicing a composite calling composed of civil, hydraulic, and mechanical engineering. In this day of specialization and of administrative concentration, it is but natural that the foremost workers in scientific as in commercial pursuits, jostled by the elbows of the devotees of sister-sciences, should give expression to their "community of interests" feeling by endeavoring to absorb or attach all that comes in touch with them. Civil engineering still remains the parent or administrative engineering profession, which correlates the wisdom of its component branches by utilizing on the greatest works the services of their specialists. Yet, in the beginning, the greatest of our civil engineers were themselves specialists, and they may still be called upon to lend their special services to mining, hydraulic, and electrical engineers, or to architects.

It is so with geography, the oldest of sciences, which properly bears the same relation to the natural sciences that civil engineering

holds to the allied engineering professions, or that the president of a syndicate holds to one of its component, yet semi-independent, corporations. It is an administrative or correlating department, yet at times lending its knowledge of the specialty from which it springs to the development of kindred branches in the world's work.

And this brings us to another division of the subject—the place of geography in education—which, it seems, must be considered in this discussion. The teaching of geography in the more advanced grades should be so planned as to direct observation to the various natural features and physical phenomena, and to the reaction of this environment on man and his occupations. It should also give attention to the recording of such features in the form of concise and systematic reports. The civil or mining engineer, lawyer, historian, promoter of financial and commercial undertakings, geologist, ethnologist, biologist, meteorologist, and persons engaged in kindred professional occupations, are constantly called upon to conduct investigations and to submit reports which require a preliminary description of the natural features and the arts of the region under consideration.

An examination of the great government survey reports, the works of historians, or the projects of civil engineers will disclose the value of higher geographic training. A large proportion of our civil and mining engineers have, at some period in their careers, had to investigate and report upon projects in localities little known. The writer is one of hundreds who have made preliminary surveys for railways, irrigation projects, or plans for river and harbor improvement, or for the development of mineral resources in Mexico, China, British America, portions of our far West, or in better-known and better-developed parts of the earth. Their reports to the stockholders of the companies or other employers, if consisting only of a brief statement of the engineering problems immediately involved, furnish few of the data necessary to enable the projectors of such enterprises to determine the financial possibilities or to estimate the resources of the region. But such reports convey an entirely different meaning and show the projects in an entirely different light when preceded by a concise statement of the geography, including an account of the climate; the water resources for power, irrigation, or domestic use; the timber resources; the geology, especially the stone available for structural purposes; the nature of the physical wealth; the biology, including the useful flora and fauna, wild or domestic; and the ethnology, especially the

character and pursuits of the people and their availability as laborers or producers.

An inspection of the series of brochures published by the Biological Survey of the United States Department of Agriculture, and of kindred reports emanating from that department, or of the reports of the United States Geological Survey, particularly those from the geologic and hydrographic branches, or of the earlier reports of the Pacific Railroad surveys, reveals clearly the value of geographic training. Few of the writers of these reports had special geographic instruction, and, therefore, only a few had sufficient appreciation of geography in its broadest sense to enable them to systematically describe and discuss all the natural and human phenomena of the region under examination. The reports of those few who have such appreciation are in a class by themselves; they stand apart from the mediocre lists of mammals or birds, agricultural lands, or water, forest, or mineral resources. The reader obtains a clear and connected conception of all the natural features of the region and of their relation to man and his works, and is at once enabled to appreciate more definitely and comprehensively the meaning and the details of the particular work under consideration. In scarcely any other field of work, unless it be in engineering and in historical and commercial writing, is the value of a thorough geographic training more clearly evidenced. It is to the thoroughness of their geographic education throughout the whole of their school and college career that the Germans are indebted in large measure for the success of their commercial travelers and official representatives in introducing their wares among foreign peoples. These representatives know beforehand much of the resources and history of the countries to which they may be sent, and are thus able to quickly sympathize with and appreciate the peculiarities of the inhabitants and to adapt themselves thereto.

From the foregoing it is evident why the more valuable and lasting reports on all of the great scientific and commercial problems of a country are rarely those written by a specialist, but those written by the man of broader geographic or administrative training; and consequently, in such undertakings, the man so taught becomes the leader and the executive, while he delegates to assistants in allied specialties, or to public institutions, the classification of the data which he has collected.

The erroneous inference should not be drawn from what has

preceded that the writer is attempting to claim for the science of geography a superior place among the allied branches of learning. While his claim is that geography is worthy of fully as great and as distinct a place as the other sciences, he believes that it is entitled to greater prominence than any other in the school and college curriculum. It should not be taught according to the old method—the parrot-like memorizing of long lists of names of places and things—nor yet according to the new—that form of physical or descriptive geography which has been characterized, on one hand, as geology, and, on the other, as a hash of other sciences.

The basis of geographic science or teaching is the map; hence geography is an exact and not a theoretic science. The essential in its every phase is place, and the consequent ability to visualize the place relations of objects on the face of the earth. For the broader or more advanced geographic studies the base map is necessarily but a much-generalized plan in outline. The basis from which this has been reduced is the topographic map, which Henry Gannett has aptly called the "mother-map." While the latter, because it depicts in detail all the changes in shape and slope of the surface of the earth, is the necessary base map for the study of many of the more advanced branches of geographic science, yet in consequence of its very detail it is the medium through which the first rudimentary geographic teaching can best be imparted.

Armed with a topographic map of the surrounding country, the teacher of nature studies can take the class on field excursions and, while imparting some of the rudiments of zoölogy, botany, or geology, he can at the same time indicate the relations of the various phenomena to one another and to their environment. He can point out the influence of a hill of particular outline upon a snow-drift, the run-off of water and its erosive action on the character of the soil, and the resulting growth of plants, and hence of animals. Finally, he can direct attention to the reflex influence of these upon man and his pursuits, and the places in which he has located roads and villages. The whole will open wide vistas for future indoor study, and will beget the impulse to discuss the results with geographic breadth of view and accuracy of record in written compositions.

This form of geographic instruction may well continue through several years, as the pupil advances in knowledge of elementary mathematics, astronomy, zoölogy, botany, physics, history, and drawing. He

may now supplement his local field studies with the drawing of maps, which will bring into action his knowledge of exact and relative dimensions, and on these he may, as his instruction broadens from the home environment to other lands, the whole earth, and finally to the universe, indicate and discuss the relative position and influence upon each other of all natural, physical, and human phenomena.

The science of the maker of the geographic base maps, or of the cartographer, rests on a foundation of higher mathematics, including geodesy and astronomy. In like manner the science of topographic surveying is dependent on some knowledge of these and of the various branches of surveying. Hence these branches of geographic teaching should come in the more advanced college grades. The topographic map shows not only the outline plan of cultural and of water features, but also in detail the slopes, shape, and conformation of the surface of the earth. Hence it is the essential base map on which the geomorphologist, forester, agrostologist, or hydrographer records and discusses his more intricate studies. Consequently this phase of geographic teaching may wait until such time as the student shall have learned something of geology, botany, physics, and meteorology, as may the study of historical, political, or ethnologic geography wait until some instruction has been given in the sciences which bear these names.

THE SECOND YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART I.

THE COURSE OF STUDY IN HISTORY IN THE COMMON SCHOOL

DISCUSSED BY

EMILY J. RICE, CHARLES A. McMURRY, ISABEL LAWRENCE,
EDWARD C. PAGE, AND FRANK McMURRY

THESE PAPERS WILL BE DISCUSSED IN PUBLIC SESSION, WEDNESDAY AFTERNOON
AT 2:30, FEBRUARY 25, 1903, AT CINCINNATI, IN CONNECTION
WITH THE DEPARTMENT OF SUPERINTENDENCE

A MEETING OF THE ACTIVE MEMBERS WILL BE HELD AT HEADQUARTERS HOTEL,
TUESDAY MORNING, FEBRUARY 24, 1903, AT 8:30

EDITED BY

CHARLES A. McMURRY

CHICAGO

THE UNIVERSITY OF CHICAGO PRESS

1903

**COPYRIGHT, 1903, BY
CHARLES A. McMURRY
CHICAGO, ILLINOIS**

NOTICE TO MEMBERS.

The active members of the society are requested to make careful study of the papers before coming to the Cincinnati meetings. The papers will be in the hands of the members six or seven weeks before the meeting.

It would be a curious and interesting spectacle to find that the active members had really read the papers before coming to the meeting. The results in discussion might also be of still greater interest.

Miss Salmon's paper on history in the previous YEARBOOK, to which several of the papers refer, can be had by addressing the Secretary.

CHARLES A. McMURRY.

THE UNIVERSITY OF CHICAGO PRESS,
Chicago, Ill.

OFFICERS AND EXECUTIVE COMMITTEE

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF
EDUCATION.

NICHOLAS MURRAY BUTLER - Columbia University, New York, *President*
CHARLES DeGARMO - - - Cornell University, New York
WILLIAM L. BRYAN - - - University of Indiana, Bloomington, Ind.
DAVID FELMLEY - - - State Normal University, Normal, Ill.
EDWARD R. SHAW - - - New York University, New York
CHARLES A. McMURRY, The University of Chicago Press, Chicago,
Ill., *Secretary-Treasurer.*

PREFACE.

These papers are a continuation of the discussion of history in the grades of the common school. Miss Salmon's paper in the previous YEARBOOK, Part I, gave a discussion of principles and an outline of a course of study. This was the beginning of an interesting and many-sided discussion.

In the present papers still other courses are offered, with somewhat detailed lists of topics, and books and reasons for the plans. It is to be hoped that this discussion may lead on to important conclusions, which may be generally accepted.

The second part of the YEARBOOK for 1903 for discussion at the Boston meeting of the National Educational Association will contain papers on "The Relation of Theory to Practice in Universities and Normal Schools."

CONTENTS.

	PAGE
History in the Elementary School. <i>Emily J. Rice</i>	9
Course of Study in History in the Grades. <i>Charles A. McMurry</i>	15
Discussions of "Some Principles in the Teaching of History" in the "First Yearbook." <i>Isabel Lawrence</i> , St. Cloud, Minn.; <i>Edward Carlton Page</i> , Northern Illinois Normal School, DeKalb, Ill.; <i>F. M. McMurry</i> , Teachers College	42
Minutes of Meetings of the National Society for the Scientific Study of Education, February 26 and 27, 1902	52
List of Active Members	55

THE SECOND YEARBOOK

HISTORY IN THE ELEMENTARY SCHOOL.

By EMILY J. RICE.

THE advance of the manual-training movement in the past dozen years is one of the most remarkable developments in educational history. The school is rapidly changing to an organization for work as well as for study, a place not only for gaining knowledge, but also for acquiring experience. This, no doubt, is due in part to the emphasis placed by recent psychology upon motor activity. We were not unacquainted with the child as an active being, and sometimes excessively active, before the scientists stamped this label upon him, but, strange to say, it took scientific discovery to give us proper respect for activity. Activity has been in the past something to repress in order that memory and reason might have their way. Now it is given its natural outlet in occupations that call out all the powers of the individual.

The introduction of occupations into the school is also based on social considerations. It is the attempt of society to repair its losses, to give to the child of today the value of the industrial training formerly given in the home. It reveals a recognition of the fact that civilization rests upon certain fundamental industrial conditions.

The value of the occupations once recognized, it is inevitable that we should next consider their relationship to the acquirement of knowledge. The studies that make up the school curriculum represent the accumulation of knowledge by the race, the vast storehouse of modern culture. The formulation of this subject-matter for study on a theoretical ideal of the development of the mind is the ordinary method followed today in arranging courses of study, but it is a method without foundation in principle. As the individual becomes of more importance than that which he acquires, a new basis for the organization of the curriculum is forced upon us. It is necessary to consider, not only the order and value of social experiences, but also

the attitude of the mind toward these experiences in any given case. The mind's power of receptivity and its ability to respond to the stimulus that comes from the activities of others depend upon the nature of its own activities. Unless the child's experiences are rich and full, he has little basis for an understanding of the similar experiences in the life of the race. The facts of history and science appeal to him just in proportion as they meet the condition of an inquiring mind endeavoring to solve the problems of daily living.

Under the theory that the attitude of the child is of equal importance with the subject-matter of study, the first consideration for the teaching of history and the sciences must be to secure for the child the use of his constructive powers in connection with the direct problems of life. He must learn by contact with the materials and forces of nature how to use these for social ends. His experience with these materials and forces is slight and his attitude toward them is full of wonder. Just as the race has gained its comprehension of them by struggle to subdue them to its uses, so must the child come to his understanding by overcoming them for himself. If difficulties of his own lead him to seek for help from the various methods of surmounting these difficulties discovered in the past, the facts gained will be full of meaning to him, because he has the key to their interpretation through the similar conditions of his own living.

The activity of childhood, given a proper outlet in constructive ways, furnishes a basis for a course of study in history of an entirely different type from the mere selection and arrangement of historical material. This material must be selected and arranged in accordance with immediate individual experiences. If we cut the world's history into slices and give a slice as intellectual food to the children of each grade, the offer of food will not secure its digestion. On the other hand, it is certain that the children will reject material given in this abstract way. The problem of the teacher is rather to find the particular portion of past experience demanded under a given set of conditions and to put this into a form that will secure its assimilation by a certain group of individuals. Such a course gives the knowledge gained in school the same vitality as that which comes through the natural channels of the outside world.

The school is a comparatively modern institution, and the education of the race was in an advanced stage when it was invented. Nature has given her children their training in the school of necessity, and, by

solving the primary problems of existence, they have wrought out inventions and arts and have laid the foundations for the higher activities and relations. It is the stimulus of social need that has led to the accumulation of the body of science and art, the treasure of modern civilization. Growth has come to the race by the use of nature's resources, and our inherited capital of knowledge is founded upon primitive racial activities. The most powerful motive force for the gaining of knowledge has always been the sense of social needs. It is a fatal mistake for the school to lose this impulse.

The demand of the little child for activity is as strong as it was in the early race, and, if this energy be utilized to solve problems of living that are within his capacity, the child will gain his knowledge just as the race has built up its inventions, arts, sciences, and laws. In his work he comes into contact with the materials and forces of nature, and these set up problems that he must solve. The school should supplement nature's method, and, by means of the subject-matter of history reconstructed in accordance with the child's needs, relate his experiences to those of other people present and past. This relation will bring about an intelligent appreciation of the work of the world and of social conditions. It will give a knowledge of sociology and history that is of real value.

An organization of the subject-matter of history in harmony with the social occupations of the school secures unity for the course of study. There is no longer a division between the old and the new studies and an overcrowding of the curriculum, but the new studies give vitality and impulse to the old, while the old serve to relate the individual effort to the life of the race and to give it depth and meaning.

Not only is it necessary to consider the activity of the child as largely motor in kind, but it must also be borne in mind that his social experience is very simple. In contact with the complex forces of modern civilization, a child can interpret little of what he observes. If we would connect his thoughts and feelings with those of other people, it must be by simplifying the conditions of modern life, by so analyzing the complexities of our civilization that we can select the things that are vital and typical in relation to his attitude of mind. Simple methods of work exist but rarely today, and, for examples of industry that correspond to the child's crude methods and will aid him in making inventions and carrying on processes, we must look to the earlier types of

life. This carries us back to primitive peoples for historical subject-matter in primary grades. It is not that knowledge about these early representatives of our race is more essential than knowledge of people in any other stage of culture, but that only among primitive people do we find illustrations of such simple methods and processes as come within the scope of the child's understanding. If, step by step, he improves his own crude methods of work and traces the gradual development of industrial processes, he gains the power to comprehend modern social and industrial conditions. In such work there is a constant interaction between the child's activity and the activities of modern life. He gains personal experience through what he does, and he learns the meaning of this experience through seeing it in relation to the experiences of others. Work in house-building, making of furniture, tools, and utensils, sewing and weaving, cooking and gardening—these recreate the arts of the race. The necessities of the hunter, shepherd, farmer, and trader underlie the development of these arts and show their gradual evolution. Under this theory every step is taken with the direct stimulus of a social use for the child's activity, and he gains a constantly increasing control over the natural forces of his environment.

The gradual occupation of our own country by its early settlers is material of the same character for a more advanced stage. Here were people thrown back upon comparatively simple ways of living and dependent upon the particular natural conditions of their surroundings. To enter into their struggles with their environment and appreciate their economic conditions is to organize the relations of geography to social life. With an industrial basis well established, the nature of government may be seen as a constant regulation of the needs of the community instead of a formal set of laws. The history of our country has been largely that of the pioneer, for we have been compelled to occupy a wide continent and to repeat the experience of the colonist at each step of our westward progress. The story of this advance is one of continued industrial struggle, and naturally leads us to place the emphasis of our teaching where it should be in the elementary school, upon social and economic conditions instead of upon the complications of political history.

It would, however, lead to a narrow view of history and a narrow patriotism, were we to teach only American history. Our national ideals are results that spring from causes running far back into the

past, and the children should look at them with something of the proper perspective. By their study of history, they should gain freedom from prejudice, ability to weigh evidence, and fairness in judgment.

While the complexity of modern life makes simplification necessary for purposes of study, the comprehension of primitive processes gives the child an insight into present conditions. There is a constant comparison of the results obtained by primitive methods of work and the complicated situations of today. The appeal of the modern building methods is strong even to the little child who is constructing a playhouse, and the child who has molded a clay dish or woven a piece of cloth has an increased sense of the value of the objects in daily use in his home, because he knows something of their manufacture. In so far as the children can enter into the activities of their own social groups, these activities become significant to them. The feeling that they are members of organizations whose purpose is the supply of common needs, and that they have their own part to perform, cultivates social responsibility. Whenever it is possible for them to take part in the improvement of local conditions, they should have an opportunity to do so. Thus they become acquainted with the functions of government and actively interested therein. The problems of public service belong with the problems of history and cannot be separated from them. History is an essential factor in education when it is used in such a way as to function with reference to the present and to point the way to the future.

The following scheme of work is founded upon the principles previously stated. Certain occupations are suggested for each grade, to be followed by historical study, but this does not mean that these are necessarily the best ones for the grade, nor that no others are to be used in the same grade. More specialized subject-matter may be used in the higher grades than in the lower ones.

In the first three grades the relation between the occupations and the subject-matter is an immediate one. In the later grades it is less apparent. The impulse gained by the social work in the earlier part of the course should help to vitalize the succeeding studies and render the close association of occupations and subject-matter unnecessary. Still, it is important that the interaction between these two lines of effort should continue throughout the elementary school, and, to a certain extent, even in the secondary school.

Grade I.—Occupations: Making and furnishing playhouses. In connection with this work, the primary arts connected with food, clothing, and shelter are introduced.

Studies: Comparison of methods of work with those of primitive peoples.

Grade II.—Occupations: Cooking, making furniture, weaving, and simple needlework.

Studies: Study of primitive people in the hunter and shepherd stages of culture.

Grade III.—Occupations: Cooking, gardening, and making of pottery.

Studies: Study of primitive farming and the beginnings of trade and city life.

Grade IV.—Occupations: Wood and metal work.

Studies: Local history with the evolution of local industries, and means of intercommunication. Stories of famous explorers. Simple problems of public service.

Grade V.—Occupations: Weaving and sewing.

Studies: Colonial history. The textile industry in colonial times.

Grade VI.—Occupations: Weaving, sewing; work in wood and clay.

Studies: Colonial history. Our struggle for independence and similar struggles in previous times, as in Greece, Switzerland, and Holland. Physical culture and games of Greece. Greek architecture and sculpture. Notable buildings in the locality of the school.

Grade VII.—Occupations: Printing and bookbinding.

Studies: The period of discovery and exploration in American history and the settlement of the West. Development of the arts of printing and of inventions connected with navigation. The study of mediæval conditions is a valuable background for this work.

Grade VIII.—Occupations: Wood and metal work.

Studies: Home economics, including civic regulations in regard to building and sanitation. Roman or English history, with the emphasis upon the evolution of government. Structure of the local government.

COURSE OF STUDY IN HISTORY IN THE GRADES.

By CHARLES A. McMURRY.

THE following course of study is designed for classes from the third through the eighth grade. There is a number of important problems to be solved in working out such a course of study.

After the aim has been fixed and the general theory for the best selection of materials established, we must decide, first, the relative importance of American and European history in the common school; second, the relation of the history to the reading work and literature in the corresponding grades; third, the connection of the history with geography; fourth, the basis for the selection of leading topics for each year.

This course of study will outline the course, not only in history, but also in the related historical and classical readings and in geography, so as to show in a simple form the interrelations of history, reading, and geography. In this course of study American history is made the chief basis and backbone of history for each grade from the fourth year on. The reasons for this are briefly assigned as follows:

1. American history, beginning with the simplest conditions of early exploration and settlement, advances by regular steps in a process of growth to our present complex conditions of political and social and industrial life. In a relatively short period most of the important stages of national growth are well illustrated in our own history.
2. The chief epochs and crises of our history are extremely instructive and interesting to children.
3. The excellent biographies of the leading characters of American history are of a superior quality and have great educational value for children and youth.
4. The best parts of European history of educative value for children can be incorporated into the appropriate parts of American history.
5. A general chronological outline of the world's history is out of the question for the common school.
6. A wholly wrong view-point for judging the course in history in the common school is furnished by chronology and by the course of study in the classical gymnasium.

7. History in our common school should begin with America and end with America, with such incorporation of European history as will give the necessary breadth and variety of culture. The parallel reading lessons based on European classics and history stories will supplement the history studies with those parts of European culture that children are capable of appropriating.

8. Our present course of study and the whole tendency of American schools, show that American history must be the chief staple of our history course. On the other hand the increasing use of European classics and historical tales in our schools shows our appreciation for the best elements of European culture. There is not the slightest disposition to limit our history course to a narrow Americanism.

SELECTION OF A FEW LEADING TOPICS.

In the course here offered a very few prominent standard topics of American history are selected for each grade. This plan excludes the heaping up of miscellaneous facts for memory work as well as the tedious chronological series.

1. Each one of these topics should fit the age, understanding, and interest of children. Often the activities, games, drawings and constructions incident to such history stories are the natural reactions of the children upon the material and show its pedagogical fitness.

2. Each topic should contain a vital core which gives it a real educative significance. It should plant in a child's mind a living germ capable of strong and beneficent growth.

3. Such a topic may be a biography, an event, a campaign, an invention, or the growth of an idea.

4. Each one of these topics should be worked out as a complete unit of thought, interesting in itself and in the associated facts, and provoking inquiry by a close succession of connected facts, giving a rational sense and movement.

5. Biographical stories furnish a large number of such topics and constitute, especially in the early years of history study, the choicest and most educative historical material.

6. American history is probably the richest in choice biographical stories of any country in the world, and, as much of this material comes from the earlier, simple stages of our pioneer life, it is especially appropriate to children.

7. Such biographical and other topics are, of course, leading types

and become centers for the organization of historical material. They simplify history by focusing it in a few leading characters, events or ideas. Such important central topics also form an excellent basis for comparison and review, biography being compared with biography, event with event, etc., the children being led constantly to look backward over their previous studies for comparisons.

**EUROPEAN HISTORY, ITS PLACE IN THE COMMON SCHOOL AND ITS
RELATION TO AMERICAN HISTORY.**

1. The fairy tales, folklore and mythologies of European countries are, in this course, not regarded as a part of the history proper, but as belonging rather to the oral work in *literature* of the first three years of school. These stories and myths constitute a very important part of the educative materials of primary grades and are indispensable both in themselves and as a preliminary to history. They are sufficiently important to be regarded as a distinct body of educative material. Their separate and growing importance in primary grades is shown in many ways.

2. A few important topics of European history are selected for full treatment in each grade from the fourth year on. They may precede or follow the American stories in the same grade. They are not mere supplements to American history, but important culture products for separate treatment.

3. The selection of these topics is based, not upon chronology, but upon the quality of the story, its spirit and setting, and its fitness to educate children of the given age. European history offers the widest choice from the simple to the complex, from the worthless to the most valuable, from savagery and barbarism to the highest culture state reached by Athens, Paris, or London. It is an incomparable error to dump all this into a child's mind in chronological order in the grades.

4. Many biographies and events in European history have a close kinship with similar topics in American history. These should be brought side by side in the same grade. If they breathe the same spirit, teach the same lesson under different conditions, they will double its educational effect. It is well to compare Columbus's explorations to the west with those of De Gama to the east. Champlain, La Salle and George Rogers Clark were men of the same heroic temper and endurance as David and Coriolanus and King Alfred.

5. The real educative influence of European history can be secured to children by such a careful selection of those episodes best adapted to their interest and understanding.

6. American topics should be traced back to their sources in European history and European topics followed to their results in America. The books and maps by which this can be done are now much more available than formerly.

THE REINFORCEMENT OF HISTORY THROUGH CHOICE READINGS FROM AMERICAN AND EUROPEAN LITERATURE.

Great is the value of American and European literature as a reinforcement to the history instruction. In the regular reading work of the schools, from the third grade upward, there is a great amount and variety of classic reading matter which is now used in the schools—poems, biographies, ballads, narrative history, novel, essay, and epic story, such as *Marmion*, *Courtship of Miles Standish*, *Horatius at the Bridge*, *Paul Revere's Ride*, *Scott's Tales of a Grandfather*, *Ivanhoe*, Hawthorne's *Grandfather's Chair*, etc. In order to show the value of this literary material used in reading lessons as a supplement to history a list of the parallel classic reading now available, and much of it now in common use, is shown in each grade: (1) the American selections, and (2) the European selections.

In judging the importance of this connection between history and reading the following considerations should be kept in mind:

1. Much of the best literature of America and Europe is historical in character and content, and, so far as it enters into the reading course, should be brought into the closest relation to the corresponding history topics. No forced correlation should be sought, but what is natural and rational.

2. In selecting the best literary products, suited for reading lessons, without any thought of teaching history, we have been wont to choose many poems and stories which give a remarkably full and clear description to great historical events and persons.

3. Often a masterpiece of literature is, for children, the best possible treatment of a topic in history, e. g., Cowper's *Battle of Blenheim*, Holmes's *Grandmother's Story of Bunker Hill*, Plutarch's *Alexander the Great*, Shakespeare's *Julius Caesar*, etc.

4. The course of study should take advantage of this very intimate relation between history and reading lessons, and thus cause the read-

ing lessons to contribute greatly to the force and completeness of history-study. History seldom takes the time for such an intense and realistic treatment of a history topic as is given, for example, in *Marmion* of the battle of Floddenfield and its attendant events. Literature has thus a way of deepening and ingraining the lessons of history, which is beyond anything which history itself can do.

5. A careful examination of this course of history as related to the reading will show that the history and reading lessons, to a considerable degree, are laid out on parallel lines. The simple reason for this is the fact that an event or story in history which thoroughly interests a child will interest him still more if put in a simple literary form which he can understand; e. g., *Paul Revere's Ride*, *Barbara Frietchie*, *The Battle of Ivry*, etc. In the nature of the case, when the history and reading touch the same or kindred topics, they should walk close together.

6. Besides the English classics of a historical character used in regular reading lessons the supplementary books in literature and history read by children at home or in the school library may still further broaden and deepen their historical knowledge. Fully half of the historical readings indicated in this course of study are of this supplementary character. Most children have plenty of time at home for this kind of reading, and the school should give it a wise direction and stimulus. The appended lists show how excellent and abundant are the books adapted to each grade of school.

7. In most cases the masterpieces of literature of a historical character are handled in reading lessons a year or two later than the corresponding history topics in history. Several reasons may be assigned for this: (a) The difficulty of the language and literary form; e. g., *Lady of the Lake*, *Evangeline*, Webster's *Speech on Bunker Hill*, Plutarch's *Lives*, Franklin's *Autobiography*, and others. (b) The artistic quality in a fine piece of literature does not at first appeal to a child. (c) A masterpiece of literature has often a greater depth and maturity of thought regarding a historical event and requires a more advanced age in the pupil. (d) The poem or drama often needs the foregoing history as a basis for its understanding. Such a poem is often a splendid retrospect and vital summing up of earlier historical studies; e. g., Lowell's *Under the Old Elm*, Webster's orations. It serves the student as a noble review of earlier studies, and draws lessons not seen at first.

On the other hand, many of the best poems and stories are so sim-

ple and graphic that they can be used as reading lessons in the same grade in which the corresponding history topics are treated; e. g., *Courtship of Miles Standish*, *Paul Revere's Ride*, *Grandmother's Story of Bunker Hill*, Hawthorne's *Grandfather's Chair*, and others.

THIRD GRADE.

HISTORY.

Christmas celebration.—The Christmas story, with Christmas tree, pictures, etc. This is customary with all the primary grades. Story narrated to younger children. Poems of Christmas time for recitation and song. These exercises do not partake so much of the character of instruction as of entertainment and joyful festivity.

Thanksgiving celebration.—History of early Thanksgiving days. Poems and stories. By means of pictures and stories something of early New England life is given.

Washington and Lincoln celebrations.—Stories of Washington and Lincoln's childhood. A full treatment of the early life of Washington and Lincoln is not expected, but an acquaintance with the more interesting stories and surroundings of their childhood.

Local history of the town or neighborhood.—The early settlers of the town and neighborhood. Stories of the most prominent pioneers; where they came from. Early log houses. Hardships. First schoolhouse. Early roads and modes of travel. Family history. Grandfather stories.

Indian life and relics.—Stories of Indian life and adventure in the early settlement of the neighborhood and of the region of country adjacent.

Different nationalities in the community and where they came from.

The geography of the third grade is expected to deal with the hills, streams, valleys, products, and occupations of the village and adjacent country.

The family and neighborhood traditions are the best beginnings of history, and an interest should be regularly cultivated for them, both in the home and school. The grandfather's stories give first notions of chronology.

FOURTH GRADE.

HISTORY.

DISCOVERERS AND EXPLORERS

Pioneers of the state and neighboring states. The movement is gradually from home outward. For example, *New York* state as the home and starting-point begins with the following stories:

Henry Hudson.—Trip up the Hudson. Other voyages. Meeting with the Indians. A map of the world is needed and a good board sketch of the Hudson locating the places of special interest on the trip of the "Half Moon."

The earliest Dutch settlers.—Trading with the Indians. The customs, buildings, and dress of the Dutch. Give some account of their previous home in Holland. A map and picture are needed. Drawings may be made by the children. Constructions also of forts, palisades, Dutch houses, ovens, and wind-mills are to be encouraged. The activities of children in such efforts are easily set going, if materials are furnished.

Champlain.—Explorations. Expeditions against the Iroquois. First settlements along the St. Lawrence. First battle with the Indians on the shore of Lake Champlain. Locate France on the map and trace the journey across the Atlantic.

The Six Nations.—Their homes and customs. Warlike character and expeditions. The map of central New York should be drawn and the war-like raids of these tribes into the neighboring regions indicated.

La Salle.—In Canada. At Niagara. On the Great Lakes. In Illinois and on the lower Mississippi. His hardships, dangers and resolution. Tonty and Hennepin in relation to La Salle.

Raleigh.—Early life. His attempts at founding colonies.

John Smith.—Explorations. Experiences at Jamestown.

Boone.—Life in Kentucky.

George Rogers Clark.

Lincoln.—Early life to age of twenty.

OTHER NATIONAL STORIES.

Abraham.—The chief scenes of his life.

Joseph.—All the parts suitable for children.

David.—His early life to the death of Saul.

These stories are well given in *Bible Stories in Scripture Language*. Use the map freely.

Romulus.—Founding of Rome.

Coriolanus.—In the main according to Plutarch.

Cincinnatus.—A short story.

The Roman stories are well given in several of the supplementary story books.

Julius Caesar.—Conquests in Gaul and England.

The Angles and Saxons.—Their invasion of England.

King Alfred.—His war with the Danes and later labors for his people.

The English stories are given in the *Story of the English* and other historical readers. It is better to give a few of these stories in full and interesting detail, with pictures, maps, and constructive efforts by the children, than to multiply short, scrappy stories.

LITERATURE AND READING OF FOURTH GRADE. MUCH USED IN THE
REGULAR READING LESSONS.

Wonder Book and *Tanglewood Tales* (Hawthorne). Excellent materials and much used: Peabody's *Old Greek Folk Stories*; *Greek Heroes* (Kingsley.)

These books are excellent for regular school reading: *Story of Ulysses*, in several forms, both prose and verse; *Tales of Troy*, both prose and poetic translations and narrative stories. There are many renderings of the Greek myths and stories suited to school use.

Heroes of Asgard—a good series of Norse myths; *Stories from the Old German* (Pratt); *Old Norse Stories* (Bradish); *Siegfried* (Burt). These stories of Norse and German myths have been used by some for regular reading exercises, or they may serve as supplementary reading matter in school and home.

Complete translations of the *Iliad* and *Odyssey*, by Bryant, Palmer, and others, are now available for teachers and pupils for school and home use.

OTHER HISTORICAL AND LEGENDARY STORIES.

Used in regular, supplementary, and home reading: *Old Testament Stories in Scripture Language*—the essential parts of the Bible stories for school use; *Old Stories of the East* (Baldwin)—a free rendering of the old Bible stories; *Boy's King Arthur* (Lanier); *King Arthur and His Court* (Frost); *Stories of King Arthur's Round Table Knights*; *Tales of Spencer*; stories of the *Fairie Queen*; *Ballad Book*. There are several good ballad books giving the old English, Scotch, and other European ballads. They are important products of the old folk-lore tradition and early history.

All the above stories and other books of similar character may be used partly for regular reading exercises, but especially for supplementary reading, for special occasions when the teacher reads to the whole school, and for home use at the fireside.

HISTORY. SUPPLEMENTARY READINGS.

American Life and Adventure (Eggleston); *Stories of Our Country* (Johon-not). These books furnish simple narratives of interesting scenes of American life. *Four Great Americans*; *Pioneers of the Revolution*; stories of Boone, Robertson, and others. There are several other simple renderings of American history stories.

MISCELLANEOUS.

Fifty Famous Stories Retold; *Open Sesame*—a collection of poems, ballads, etc.; *The Arabian Nights*—most famous of old stories; *Stories of the Old World* (Church).

It is well for the children in the fourth grade to begin to read for themselves the simpler stories of America, and also kindred stories of adventure and heroism from other countries, especially from European countries. The oral treatment of stories in this grade is the best possible introduction to the proper spirited appreciation of such narratives.

GEOGRAPHY.

The geography of the fourth grade is laid out parallel to the history stories.

For children of New York state the leading topics deal with the rivers, mountains, cities, and industries of New York, and following these are the chief geographical topics of the Atlantic states, of the Alleghenies and the middle West, including much of the Mississippi valley.

The history topics of this grade, which have a marked geographical character, cover almost exactly the same region of country. The American stories read also in this grade are located in the same geographical region.

The advantage of this close parallelism of history and geography is found in the very great interest which good stories lend to localities, and in the mutual help which these studies render to each other in explaining and fixing better the facts of both geography and history. Each study reviews, reinforces, and intensifies the facts taught by the other. The value of each study in its relation to life is also better seen.

FIFTH GRADE.

EUROPEAN EXPLORERS IN AMERICA.

Columbus.—His great purpose and its results.

The Cabots.—A short story.

Magellan.—First voyage around the world.

Cortez.—The conquest of Mexico. Indians of Mexico.

De Soto.—His wanderings in the southern states.

Coronado.—Explorations in the southwest.

Drake.—His buccaneering voyage against the Spaniards.

WESTERN STORIES.

Lewis and Clark.—Journey up the Missouri.

Fremont.—Two expeditions in the Rocky Mountains.

To California in 1849 to the gold regions.

Powell's descent of the Colorado.

These stories deal with two groups of the greatest explorers on sea and land. They were men of great energy, high purpose, and unyielding determination. Their deeds are not always praiseworthy, but they are striking types of the men of their time and in the main men of noble character.

HISTORY, EUROPEAN.

SPANISH AND PORTUGUESE STORIES.

Isabella of Spain.

Christians and Moors in Spain.—Conquest of Granada. Irving's stories furnish some good material for the teacher.

Prince Henry and De Gama.—Exploration of the Coast of Africa. The efforts of the Portuguese to find an eastern route to India and the results should be compared with Columbus and Spain's efforts toward the west.

ENGLISH HISTORY.

William the Conqueror.—Conquest of England.

Richard I.—His crusades. His knightly adventures.

John and the Great Charter.

Elizabeth.—In connection with Raleigh and Drake. Story of the Armada.

There are several excellent books covering these topics, as *The Story of the English*, *Child's History of England*, etc.

SCOTCH HISTORY.

William Wallace and Robert Bruce.

Tales of a Grandfather (Scott) and several other books give these famous stories in good form for schools.

READING.

Partly for regular school work and partly for home reading.

AMERICAN.

Hiawatha (Longfellow)—Much used as a reader; *American Explorers* (Higginson)—much original material; *Heroes of the Middle West* (Catherwood); *Discovery of the Old Northwest* (Baldwin); *Colonial Children* (Hart)—source material; *Source Book of American History* (Hart)—excellent; *American Historical Tales* (Morris); *Children's Life of Abraham Lincoln* (Putnam). Children should be encouraged at school and home to read and enjoy this class of books.

ENGLISH AND SCOTCH.

Tales of Chivalry (Rolfe); *Tales from English History* (Rolfe)—prose and verse. Heroic ballads, especially English and Scotch.

Robin Hood (Pyle)—first-class stories; *Tales from Scottish History* (Rolfe); *Story of the English* (Guerber)—earlier parts.

STORIES OF OTHER EUROPEAN COUNTRIES.

READING AND LITERATURE.

Lays of Ancient Rome (Macaulay)—*Horatius* and others; *Jason's Quest* (Lowell)—*Story of the Golden Fleece*; *Ten Boys on the Road from Long Ago*.—partly English stories; *Stories from Herodotus*—Cresus, Cyrus, and others; *Story of the Greeks* (Guerber)—the earlier parts; *Story of Roland* (Baldwin)—age of Charlemagne; *Ulysses among the Phaeacians* (Bryant)—simple poetic form; the *Odyssey* of Homer (Palmer)—poetic prose rendering; *Book of Golden Deeds*—many short stories.

Most of these are famous world-stories which are not only interesting to children, but of culture value as part of the race-thought and experience. In the regular lessons in history and reading only a part of this historical and literary matter can be treated. But the leisure hours of children in school and at home cannot be better employed than in this reading, which expands the mind beyond the narrow range of school lessons. The geographical theater of these stories should be clearly understood as a basis for clear knowledge.

The regular course in American history begins in the fourth grade with a selection of the pioneer history stories of North America. In selecting and arranging the American stories for the fourth and fifth grades two ideas have been determining: (1) The earlier simpler pioneer stories of the East and middle West are used first, as Hudson, Champlain, Smith, Boone, and Lincoln. The more difficult stories of Columbus, Magellan, Cortez, and Drake, together with stories of the extreme West (Rocky Mountains), are given in the fifth grade. (2) The movement from home outward is kept in mind, beginning with the local and state pioneers, as Hudson and Champlain in New York. Children in Virginia should begin with John Smith, Raleigh, Boone, etc.

Two years are thus given to the pioneer period of American history, dealing with the life, difficulties, and surroundings of the explorers and very earliest settlers. Chronology is of but little importance, although a few leading dates can be fixed. The great thing is to produce a strong impression by a complete, animated, and realistic portraiture of a leading character or event in which he figured. The pioneer period of American history lasted, however, from 1492 to

1850, or even later, and one of our historians has called attention to the fact that the most marked and characteristic traits of American character have been found usually upon the frontier. As indicated in the course, parallel to these American stories runs a series of European history stories, somewhat similar in tone and general simplicity of life. Wherever it is possible, it is deemed better that these pioneer and European stories should be handled orally by the teacher in the class. But children in the fifth grade at least will soon learn to read such stories, and they should be encouraged to do so, both to extend their knowledge and sympathy over a larger field of history, and to acquire the habit of using books well. The oral treatment of some of the stories in the fourth and fifth grades is the best means of making history interesting and realistic, and of introducing them to a fruitful and engrossing study of books a little later on.

It is our opinion that in all these stories, both American and European, the geographical background should be kept clearly in mind. Wall maps, globes, and blackboard sketches should be used, therefore, in every story to make clear the simple geographical conditions in which the story is placed. One reason why the stories of Columbus and Magellan are more difficult than those of Champlain and Boone is that the former really require a knowledge of the geography of the whole earth, and of the vague ideas then prevalent on geography. It is assumed also that children in the third grade have already had a short study of the world whole and have located the chief continents and oceans.

With these statements in mind, it will be possible to see the relation of this entire course of history study to the parallel course in geography.

The fourth and fifth-grade geography deals with the United States and North America, thus running almost exactly parallel to the history stories of the same grades.

In the sixth grade the geography of Europe is studied. It will be observed that the sixth-grade history has much to do with Europe, both directly as in the Persian and Punic wars, and indirectly in the relations of colonial settlement and development to European states, wars, etc. Besides this, the myths, history stories, and literature of European countries have been much used in the fourth and fifth grades, where the geographical locations of many of them have been fixed, as in the case of Ulysses in the Mediterranean, Siegfried on the

Rhine, Horatius at Rome, Alfred in England, Isabella in Spain, and many others.

The course of geography in the seventh grade deals with Asia, Africa, South America, and the world whole in its modern sense.

It is found that the topics in history, as Clive and Hastings in India, Livingstone and Stanley in Africa, are selected partly in consonance with this geographical movement. The close connection and constant interaction of history, reading and literature, and geography in this course of study are according to design. It may be said without trepidation that, if the child were habituated to trace out all the historical stories in this course of study in their geographical setting, he would have a fair general and detailed knowledge of the geography of the world.

SIXTH GRADE.

HISTORY.

EUROPEAN HISTORY.

The Persian wars.—Contact of Persia with Greece.

Darius and Xerxes.—Marathon and Platæa.

The battle of Salamis.—The leading characters also.

The Punic wars.—Rome against Carthage. Hannibal and Fabius. Regulus.

The Scipios.—The courage and perseverance of the Romans.

COLONIAL HISTORY OF AMERICA.

Virginia.—James I, Bacon, Washington. Development of representative government. Royal governors. Emphasis upon the English side of the history. The picture of colonial life among the Virginia cavaliers should be clear.

New York.—Peter Stuyvesant and the Dutch rule. History of the colony under royal governors. The relations with the Indians and other neighbors.

Pennsylvania.—William Penn, Benjamin Franklin. The Quakers and Germans. The people and the governors. Plans for the larger union of the colonies.

Massachusetts.—Settlement of Plymouth and Boston. Winthrop. Growth of the representative system. The Indian wars. Royal governors, charters, and popular assemblies. The religious controversies and persecutions.

THE EUROPEAN WARS AS RELATED TO AMERICA.

The last French and Indian war. Braddock's expedition. The last great struggle between the English and the French. Pitt in England.

Montcalm and Wolfe. Pontiac's Conspiracy. Condition of affairs at the close of the struggle. Character of French and English and their relations to the Indians.

RELATED READING AND LITERATURE (AMERICAN).

Miles Standish (Longfellow); *Grandfather's Chair* (Hawthorne); *The Gentle Boy* (Hawthorne); *Giles Corey* (Longfellow); *Mabel Martin* (Whittier); *Snow Bound Among the Hills* (Whittier); *Tales of the White Hills* (Hawthorne); *The Sketch Book* (Irving); *Source Book of American History* (Hart); *Biographical Stories* (Hawthorne); *Our Country in Prose and Verse*; *Pilgrims and Puritans* (Moore); *Conquest of the Old Northwest* (Baldwin); *The Building of the Ship* (Longfellow); *Autobiography of Franklin*; *Seven American Classics*; *The Conquest of Mexico* (Prescott); *Children's Stories of American Literature* (Wright).

READINGS FROM ENGLISH LITERATURE.

The Coming of Arthur and the Passing of Arthur (Tennyson); *Lay of the Last Minstrel* (Scott); *Choice English Lyrics*; *The Christmas Carol* (Dickens); *Child's History of England* (Dickens); *Tales from Shakespeare* (Lamb); Historical plays; *Stories from Waverly* (Scott); *Stories from Old English Poetry* (Richardson); *Stories from English History* (Church), two volumes; *English Historical Tales* (Morris); *Source Book of English History* (Kendall); *History of England* (Macaulay)—Introduction.

EUROPEAN READINGS.

Ten Great Events—partly English; Lanier's *Froissart*; *William Tell* (Schiller); Bryant's *Iliad*—poetic translation; *Don Quixote*—a simple adaptation.

In laying out the course of study in history for the sixth grade, we are met with serious difficulties, and our plan is likely to be subjected to severe criticism. In taking up in the sixth grade the Persian war or Greek war of freedom, and the contest between Rome and Carthage in the Punic wars, we are led by two considerations: (1) These two wars are two of the most interesting, dramatic and important wars in the history of the world and bring out very clearly the peculiar traits of the Greeks and the Romans. (2) Both wars are relatively simple and easy to understand, and seem to be within the grasp of sixth grade children. They center in a very few battles and personalities.

For other reasons it happens also that the geography of the sixth grade is that of Europe, and the study of these great states of antiquity will add much to the interest of many topics in European geography.

In studying the colonial period of American history in sixth grade, it is a serious question whether we are not entering upon subjects too difficult for sixth-grade pupils. The charters granted by European states, the royal prerogatives; the taxing power of Parliament, navigation laws, the gradual growth of representative governing bodies in the colonies and the religious disputes will seem to many too difficult for children of this grade. Against these objections we may place the following considerations:

1. In the earliest settlement of colonies we have the simplest possible economic, social and governmental conditions. The origins of no European state can be traced back to such simple, well-known conditions as those of Plymouth, Jamestown, and other colonies. Life was rude and plain, and everything sprang from the simplest beginnings. Even the religious life, inherited through centuries from Europe, was simple and direct in its manifestations and results.
2. The beginnings of government and the simple transition from pure democracy to a representative system can be seen as nowhere else. The powerful tendency toward self-government through colonial assemblies, and in opposition to the tyranny of royal governors, can be easily understood.
3. The spirit and occupations of the people in fishing, agriculture, lumbering, and shipbuilding are such as children can understand.
4. The dramatic incidents of Indian war and religious persecution present no special difficulty.
5. Colonial history should be treated largely as a series of colonial biographies. Interest should center in such men as William Penn, Benjamin Franklin, Miles Standish, John Winthrop, Roger Williams, Eliot, Davenport, Andros, Berkeley, Bacon, Washington, Montcalm, and others. A few leading biographies in each colony treated with interesting fulness will serve as strong types to bring out the aims and character of the people.
6. During the colonial period we are collecting concrete data in matters of government and colonial history, whose general and deeper meaning will be better seen when we come to survey the causes of the Revolution in the seventh grade. When we reach this point, about the middle of the seventh grade, we can well afford to go back and trace up in succession the steps in the development of free government in the colonies. This will be preceded also in the seventh grade by a study of the Puritan revolution in England.

7. Again, it is our purpose to give a full and rich treatment to the four principal colonies, thus finding time for more concrete and biographical detail than would be possible if all the thirteen colonies were treated alike. The lesser colonies can be treated as incident to the four leading ones, thus concentrating the study upon a few great persons and topics. With these considerations in mind it is believed that the period of early settlement and colonial development can be successfully treated in the sixth grade.

The close dependence of the early settlements and of the later colonies upon royal grants and royal authority make it advisable to trace back the causes of settlement to Europe, and to get as definite notions as possible of the peoples and countries from which the colonists came. The study of the colonial period should therefore to a considerable degree be a study of England, Holland, Sweden, France, Scotland, and Ireland, and of the political and religious conditions in those countries, at least of those which led to the emigrations. In our plan the sixth grade geography is devoted to the study of Europe. In this work the character, occupations, and governments of European states will receive a still more definite treatment. Thus geography and history may work together.

An examination of the American historical literature, prescribed in the reading of the sixth grade, will show that the regular reading exercises may contribute much to the enlargement and enrichment of the history studies. *The Courtship of Miles Standish*, *Grandfather's Chair*, *The Gentle Boy*, *Giles Corey*, Hawthorne's *Biographical Stories*, *The Sketch Book*, and the *Autobiography* of Franklin deal directly with colonial life, and several of the books of history story do the same. This is one of the best illustrations we can have of the powerful reinforcement of history through classic readings.

The readings derived from other European countries give a still further enlargement to historical knowledge. A very large proportion of the history that comes to the children of the common school must come to them through these supplementary and voluntary readings.

The course of study can never be loaded up with any large amount of required work along these historical lines. A few chief topics can be treated in an interesting way, and the children may be encouraged to use the school library and employ their own leisure hours at home in extending and enriching their knowledge of history and literature.

Many of the finest literary products appropriate to school children have, fortunately, this marked historical interest and character, and the taste for this kind of good reading should be the goal of the teacher's efforts with many children. The selections of historical literature in this course of study form only a part of the great body of good literature with which children should become acquainted during their school years.

SEVENTH GRADE.

THE REFORMATION IN GERMANY AND EUROPE.

Leo X., Luther, Charles V., Henry VIII., Loyola, Gustavus Adolphus. Contest of Protestants and Catholics.

THE PURITAN REVOLUTION IN ENGLAND.

Charles I. and Parliament; Strafford. Hampden, Pym, Cromwell, Milton. William of Orange and the Protestant succession. Wesley and the Nonconformists.

LOUIS XIV. AND THE FRENCH MONARCHY.

French royalty and aristocracy. The tyranny of the upper classes over the poor. Lafayette, his early life and connection with America.

In the previous grades the character of the French has been studied in a much simpler form in Canada. Their customs, religion, and warlike qualities were seen in La Salle, Frontenac, Champlain, Marquette, the Jesuits, and others. The stories of Champlain, La Salle, and the French wars have dealt also with the schemes of the French government and with the French monarchs and statesmen.

AMERICAN HISTORY.

Causes of the Revolution. Trace back the causes in the history of the colonies and of England. The life of Samuel Adams as a Puritan leader. Opening events of the war about Boston. The capture of New York and the battles near New York. Washington's retreat through New Jersey. Burgoyne's invasion and its results. Valley Forge and the sufferings of the army. Sea fights—Paul Jones and others. War in the South—Charleston, Savannah. Cornwallis's campaigns and surrender at Yorktown. Life of Washington, Franklin, Paul Jones, John Adams, Morris. The state of money matters at the close of the war. The growing hostility between the states. Congress and its powers under the Articles of Confederation. The Philadelphia Convention: its struggles and leading men. The Constitution before the people; ratification. The life of James Madison in connection with the Constitution.

The great biographies should be very prominent, as Scudder's Life of Washington and Hosmer's Samuel Adams.

RELATED READING AND LITERATURE.

Evangeline (Longfellow)—French life and earlier history; *Poems of Emerson* ("Lexington," "Boston," and other poems); Webster's *Bunker Hill, and Adams and Jefferson*—strongly historical; *Grandmother's Story of Bunker Hill* (Holmes); *Camps and Firesides of the Revolution*; *Boys of '76* (Coffin)—good home reading; illustrated; *American War Ballads and Lyrics*—the earlier parts; *Paul Revere's Ride* (Longfellow); *From Colony to Commonwealth* (Moore); Scudder's *Life of Washington*—the best for children; *Source Book of American History* (Hart)—Revolution and Confederation; *Washington's Rules of Conduct*, and other papers; *Poor Richard's Almanac* (Franklin); *Speech on the Landing of the Pilgrims* (Webster); *Last of the Mohicans* (Cooper); *Stories of American Literature* (Wright); biographies: *Twelve Naval Captains* (Sewell), first part; Fiske-Irving's *Washington and His Country*; *Life of Samuel de Champlain* (Sedgwick); *Life of John Paul Jones* (Hapgood); *Life of Benjamin Franklin* (More).

RELATED ENGLISH LITERATURE.

Some of these books, like those in the previous list of American books, may be used in the regular reading work.

Macaulay's *History of England*—the part on the Puritan revolution; *Tom Brown's School Days* (Hughes), English school life; *Enoch Arden* (Tennyson); *Tales of a Grandfather* (Scott)—Wallace and Bruce; *Shakespeare's Tragedies* (Lamb)—Historical plays; *Vicar of Wakefield* (Goldsmith)—English life; *Cotter's Saturday Night* (Burns)—Scottish home life; *Life of Nelson* (Southey)—wars with Napoleon; *Source Book of English History* (Kendall); *Story of the English* (Guerber)—use the parts needed.

OTHER LITERATURE OF EUROPE.

The Two Great Retreats (Grote)—retreat of the ten thousand; *Merchant of Venice* (Shakespeare)—Italy; *Plutarch's Lives*—Greek and Roman leaders; *Life of Peter the Great* (Motley)—interesting and clear; *Natural History of Selbourne* (White); *Stories from the Classic Literature of Many Nations* (Palmer); *Stories of the Alhambra* (Irving)—Spain and the Moors; *The Letters of Chesterfield to his Son*.

At the beginning of the seventh grade three large topics of European history are treated. The first of the three terms of the year can be profitably given to these topics: The Reformation, the Puritan revolution in England, and the French monarchy are large and difficult topics to deal with in the seventh grade. The question is

whether a few of the striking and typical characters of these famous epochs in history can be brought before children in such a vivid way as to produce an educative result.

In dealing with the Reformation there is danger of awakening religious controversies which would better be allayed. And yet the Reformation has powerfully influenced the whole of modern history, and especially those parts of it which led to the settlement of America. The conflict between Luther and Rome, and later between Protestant and Catholic nations should be handled in as unpartisan a manner as possible. The better purposes and tendencies of both parties to the conflict should be emphasized and the weaknesses on both sides exposed with a fair but charitable spirit. The main purpose of the instruction is to get an interesting view of a few men like Luther, Leo X., Charles V., Loyola, and Gustavus Adolphus.

It is quite possible that in many schools the Reformation cannot yet be treated as a historical topic, in a fair-minded way, and will have to be omitted from the school course.

The Puritan development and revolution in England produced such a profound and determining influence in America that it needs to be understood by Americans, more perhaps than any other part of English history. It may be fairly questioned whether seventh-grade children can grasp enough of its real meaning to get out of it a culture value. But, assuming that they can, it is a very interesting problem to inquire how they can best approach it. Usually it has been supposed that a few lessons should be given to the Puritan revolution as a preparation and means of appreciating the great Puritan exodus from England to America in the first half of the seventeenth century; the chronological and causal sequences which are usually followed in history would also suggest this order. But it has been often observed by thinkers that the pedagogical order is the reverse of the logical and causal. Instead of studying English Puritanism as an approach to the better understanding of American Puritanism, it may be better to begin at home with a study of American Puritans as a means of better understanding English Puritans. In fact, the pedagogical argument is very strong in favor of the latter procedure. American Puritanism is not only much nearer home to an American child, being a very prominent part of our own life and history, but it is very much simpler than English Puritanism. It is not difficult for a child to understand the life of the Puritans in the small settlements at Plymouth and Bos-

ton. In England the surrounding conditions are tenfold more complex. There are kings and lords and parliaments, and all sorts of political, social, and religious controversies. The striking traits of the Puritans stand out in the New England settlements with an unmistakable clearness and simplicity, dominating the whole life. If a person wished to spell out the meaning of Puritanism in England, he would find the alphabet of it in New England. This alphabet the children have learned in the sixth grade, and have traced out further its results in colonial history with its spirit of self-government in political and religious affairs. With this concrete, and what might be called, experimental knowledge of Puritanism in America on a small scale, the child will be the better qualified to interpret the men and forces at work during the Puritan revolution in England.

The same thing is true with regard to the French. In the study of French explorers, priests, and settlers in Canada and along the great lakes, children have a much better chance to understand French character than they could have by studying French history in France itself with its complexities of government and society. French life in America was simple and unconstrained, and gave unmistakable proof of its natural bent. After studying the French colonists in America, therefore, we can the better appreciate the French in their old home.

EIGHTH GRADE.

EUROPEAN HISTORY.

Julius Cæsar and Augustus. The Roman empire. The great period of Rome.

The French Revolution and Napoleon. Comparison with the American Revolution.

England's conquest of India. Clive and Hastings.

The English in Africa. Livingstone and Stanley. The struggle for Africa in recent years.

Revolt of the Spanish-American provinces.

The Greek war of independence. Turkey. Decay of Turkish power.

The union of the north German states. Bismarck and King William.

The union of Italian states. Cavour and Victor Emanuel.

Queen Victoria's reign. Bright, Gladstone. The English empire at present.

AMERICAN HISTORY UNDER THE CONSTITUTION.

Hamilton and the finances; the banking system. Early division into parties; origin and growth of parties. Growth in territory, illustrated by

simple maps. War of 1812; the right of impressment. Internal improvements; commercial routes westward. Immigration—its character and effects. Jackson and the spoils system. Inventions—their influence upon the progress of the country. Growth of slavery; the chief steps in its development. The Mexican war—its motives and results. Discovery of gold in California; continental railroads. The doctrine of state rights; southern leaders. Plan of the civil war; a few chief campaigns. Our system of revenue; the national debt. The three departments of government; a system of checks. Civil-service reform; review of the spoils system.

Biographies: Hamilton, John Quincy Adams, Daniel Webster, Lincoln, Horace Greeley, Whittier, Garrison, Whitney, Morse, Peter Cooper.

REGULAR READING LESSONS AND AMERICAN LITERATURE.

Masterpieces of American Literature (Scudder); *Nature Pictures by American Poets*; *Speech on Washington* (Webster); *Washington's Farewell Address*; *Tales of a Wayside Inn* (Longfellow); *Poems of American Patriotism*; *Hymns and Patriotic Songs*; *Fortune of the Republic and American Scholar* (Emerson); Schurz's *Abraham Lincoln* and other selected pieces; *Lincoln's Inaugurals*, and other speeches; *My Hunt after the Captain* (Holmes); *Biglow Papers*—selections (Lowell); *Uncle Tom's Cabin* (Stowe); *Speech in Reply to Hayne, or, The Great Debate* (Webster); *Burke on Conciliation with the American Colonies*; Parkman's *Oregon Trail*—pictures of western life; *Source Book of American History* (Hart), latter part; *The House of Seven Gables* (Hawthorne); *Story of the Great Republic* (Guerber), latter part; *American Writers of Today* (Vedder); *The Pilot* (Cooper); *Twelve Naval Captains* (Sewell).

READINGS FROM ENGLISH LITERATURE.

Masterpieces of English Literature; *Roger de Coverley* (Addison)—English pictures; *Lady of the Lake* and *Marmion* (Scott); *The Deserted Village* and *Traveler* (Goldsmith); *Ivanhoe*, *The Abbot*, and *Rob Roy* (Scott); *Essay on Samuel Johnson* (Macaulay); *Source Book of English History* (Kendall); *Tale of Two Cities* (Dickens).

OTHER EUROPEAN LITERATURE.

Julius Cæsar (Shakespeare)—closely related to the history; *Peasant and Prince* (Martineau); *The Judgment of Socrates* (Plato); *Story of the Romans* (Guerber)—latter parts; *The Boys' Browning*—"Pied Piper" and other poems; Plutarch's *Lives*—historical biographies; *Don Quixote* (Cervantes); *Two Great Retreats*—retreat of Napoleon from Moscow; *The Talisman* and *Quentin Durward* (Scott); *Romola* (Eliot)—Italy and Savonarola.

Eighth-grade history, if pursued according to the outline, will require a rigorous study during the last year of the common-school

course. If possible, five recitations a week should be given to history during this year. The completion of geography in the seventh grade may render more time available for history in the eighth. If physical geography is studied in the eighth grade, it need not receive more than two or three recitations a week.

The topics assigned to European history in the first term of the eighth grade will be interesting and instructive to eighth-year pupils, if handled chiefly in a biographical way. The previous studies in the geography, history, and literature will prepare the way for a better understanding. It may well be that only a part of these topics can be treated, but, if time permits, they are all deserving of attention. They should be handled in a large and simple way, partly by talks from the teacher and partly by definite references to books which are simple and interesting to the children. We have no single text-book that would cover this ground, and long and difficult readings should not be required of the children. Large maps of Europe and of the world will be constantly needed, and these topics will furnish a fine opportunity for a review of the geography of Europe and of the world, as well as of a few topics in history.

Nothing approaching a deeper historical study of these topics can be made, and yet an important significant idea in each case can be worked out in an interesting way.

The American topics assigned to the eighth grade involve greater difficulties than the history work of any other year of the common school. As we approach the more recent topics of our history, the large and complex scale of events increases, and, besides, many of these topics are still in the region of controversy and have not fallen into the clear perspective of history. Not a few of the best teachers have avoided the teaching of nineteenth century history because of this complexity and unsettled aspect of recent politics. On the other hand, one of the chief purposes of history and school studies generally is to bring the children somewhere near to our modern problems and into sympathy with present social and economic life. As yet scarcely any plan for accomplishing this has been broached, to say nothing of having worked it out. Only a few suggestions along a tentative line of effort will be made :

1. It is better to work at a few important topics, such as Hamilton's financial system, the growth in territory, etc., in each of which a controlling idea is made manifest, than to spread a drag-net over all the

important events of our constitutional history, in the successive administrations. The organization of facts around a few centers is an indispensable economy.

2. A good brief text-book forming the basis and outline of study is necessary.

3. A simple and definite plan of reference studies should be made, so that children may learn how to use books in a library.

4. A half-dozen or more of the best biographies should be carefully selected; and the children should be encouraged, in connection with leading topics, to give them systematic study. Good examples of these are given in the lives of Jackson, Alexander Hamilton, U. S. Grant, and others in the "Riverside Biographical Series."

5. It seems best to make the study of civics in the common school hinge upon a few leading topics in the regular course of history. The best places for the study of the constitution and structure of our government are in the convention at Philadelphia for the framing of a federal government, in the topics on the actual operations of the government in connection with internal improvements, the slavery struggle, the important decisions of the Supreme Court, and in the constitutional amendments. In this way the study of the constitution is made more concrete and interesting.

6. The masterpieces of literature that discuss the crucial affairs of the nation, as handled in the reading lessons, concentrate attention upon dramatic events and chief ideas. They form an excellent review of history and give it a deeper meaning.

Having thus far laid out a proposed course of study for history in the grades, with a short statement of reasons for the same, we are prepared to discuss briefly the more general question of the selection of topics in the history course according to the *concentric circles*, i. e., the survey of the general course of history three or four times during the years of school, each succeeding review purporting to give a broader and deeper knowledge of the chief events and ideas. This plan has been recently recommended again with undiminished fervor and confidence.

In its favor it has the well-established practice of schools in this country and in Europe. Indeed, it is claimed that in Germany this plan has been followed with such entire success in the best schools of the world that it is the only one worth serious consideration.

Psychology and child-nature have been identified with this scheme,

as if they had been born and bred together. But we should not be surprised by this coincidence, for anyone who has a scheme can generally find in psychology friendly shelter and protection. In fact, we shall be found later defending our own wayward scheme on psychological grounds.

The opportunity for frequent review of important topics and for that thoroughness to which the schoolmaster is at least theoretically espoused gives this theory a very strong practical hold.

This plan of the concentric circles, with its review system, has so long held the right of way in schools and with the theorizers that its opponents will not easily turn the schoolmasters and their flocks into a new path.

But we will at least take a glimpse at the other side of the question.

The theory of the culture epochs—that is, of the correspondence between race-growth and child-growth—whatever it may be worth, does not support the idea of the concentric circles. A given culture epoch has been often repeated in history, but not in the same individual or nationality. As children grow they are expected to grow out of one age into another. Just to the extent to which a child really lives and experiences a period of history, he should outgrow it and never be compelled to become immersed in it again. It will re-echo in his later experience, but the man should never become a boy again in the full sense.

Perhaps the real reason why this repeated memory cram of the concentric circles is necessary, this more or less mechanical reiteration, by successive reviews, is that the facts never have been properly assimilated into the child-life, and a forcing system of reviews is the only thing that can pound them into the memory.

The assumption that the experience of Germany on this point is conclusive proves too much. The most respectable progressive school in Germany, that of Herbart and his disciples, has long since abandoned the idea of the concentric circles in history, has for years laid out a school course and followed a wholly different principle and has given the most vigorous reasons for doing so. The traditional course of the German classical *Gymnasium* is the one always cited as an example of the concentric circles. Of all the courses in the world this is the one perhaps least adapted to the common schools of America. For ten years, from the age of eight to eighteen, the boys in a German *Gymnasium* are kept solidly at work upon the original

Latin and Greek classics. The common schools of this country have absolutely nothing of this, and it is difficult to see why a history course based upon that of the German *Gymnasium* should be foisted upon the children of this country. Even our high schools which prepare for college have abandoned the course of the German classical *Gymnasium*, and for our common school, which has wholly abandoned the classical languages, it is an anachronism to require the whole history of Europe, and even of the world, as a preface to American history in the seventh and eighth grades. The real difficulty with such a course is that it is made out almost wholly from the historian's view of the chronological and causal connection of events, and with almost no regard for modern ideas of child-development, that is, of the motives and activities which predominate in the period of childhood up to the age of fourteen.

The points of defense of the course of study in history offered in this paper (as against the plan of concentric circles) may be briefly put as follows:

1. The intention is to select in each grade only those topics which a child at that age can thoroughly appreciate, enjoy, and assimilate—in short, experience—and thus receive the essence of its educative influence.
2. Each of these topics should be a center for the organization of a considerable body of knowledge and a type which will bring it into fruitful comparison with earlier and later topics.
3. Thoroughness in knowledge is provided for (*a*) by frequent comparisons of earlier with later topics; (*b*) by reaching back constantly into earlier topics for the causes or explanations of later developments, and *vice versa*; and (*c*) by a correlation of literary and geographical studies with those of history which serves to review and illuminate the history.
4. Only a limited number of European topics—those having a pronounced educative value for children—are included. To follow all the ups and downs of European nations is out of the question.
5. It may be said that the expansion of the child's culture through European history and literature is fully equal to the best child's capacity.
6. It has been our intention to offer a course somewhat fuller and more comprehensive than any school can accomplish, so as to leave room for choice of material and variations according to local ideas and necessities.

COURSE OF STUDY IN GEOGRAPHY.

(Running parallel with the history and reading.)

THIRD GRADE.

This is the beginning of regular geographical study. The Nature-study work of the three primary grades covers the topics which are sometimes classed under the head of geography.

HOME GEOGRAPHY.

This includes topics of the home environment such as local surface, hills, streams, etc.; food, clothing and building materials; the common occupations and trades about the home; local commerce, roads, bridges, and means of traffic; local government, officers, taxes, etc.; and local weather conditions and seasons. Excursions with children to shops and fields to study these topics.

THE STUDY OF THE WORLD AS A WHOLE.

This includes a brief study of the earth as a globe, the position and size of the continents and oceans. All should be located with reference to America and the home as a starting-point. Simple large maps should be freely used and interpreted.

FOURTH GRADE.

THE STATE AND NEIGHBORING STATES.

Leading topics of the home state; a typical river, city, chief occupations, as coal-mining, corn-production, lumbering, or cotton mills.

The leading topics of the surrounding states: in agriculture, physical structure, scenery, mining, commerce, and manufacturing industry.

Each topic treated fully, with concrete detail, pictures, maps, and black-board work. The types worked out in the home geography and in the home state should be freely used for comparison with later topics.

FIFTH GRADE.

Type studies, extending over the rest of the United States and North America. Each type the center for organizing a large body of geographical data. Geographical readers can be used to good advantage.

North America as a whole, in its physical features, products, and peoples. The leading topics of North America, treated as types, form a good basis of comparison in studying similar topics in Europe.

SIXTH-GRADE GEOGRAPHY.

The structure of Europe—its mountains, plains, and coast line.

The leading cities, mountainous regions, industries, manufactures, productions, and governments of European states. A constant comparison with kindred types previously studied in America.

The relations to the previous and parallel work in history and reading (literature) will be of great service.

SEVENTH-GRADE GEOGRAPHY.

The remaining continents, oceans, and other parts of the world.

In modern times Europe has been the center from which all geographical exploration and settlement has proceeded.

Trace the relations of European states to their colonial possessions, the government of colonies, route to India, etc.

Chief topics of Asia, Africa, Australia, and South America. These continents have been largely mastered by Europeans. Study them in this relation.

Survey of the world-whole as to land-masses, oceans, races, commerce, productions, climatic zones, trade routes, etc.

DISCUSSIONS OF "SOME PRINCIPLES IN THE TEACHING OF HISTORY" IN THE "FIRST YEARBOOK."¹

By ISABEL LAWRENCE, ST. CLOUD, MINN.

"The object of the study of history, on its educational side, is to provide material that may aid in developing the faculties dominant at each stage of mental development" (p. 35).

THERE is nothing particularly original in this statement of modern educational theory. Miss Salmon might have remarked, like the graduate of the pedagogical department of the university, giving a definition of "education" to the teachers attending a country institute: "I could give an illustration, but I am afraid of narrowing your ideas." The monograph would then have taken its place among many other scholarly and literary utterances on pedagogy — vague, unassailable, and useless. But Miss Salmon fearlessly illustrates, and hence the value of her contribution.

The stages of mental development are admirably characterized, and a masterly effort to arrange historical material in proper sequence follows. Practical teachers are welcoming Miss Salmon's suggested course with enthusiasm. No arguments are needed to convince them of the value of the comprehensive series of the world's history stories, in place of exclusive United States history material. The growth of the child's appreciation of English literature alone, proves the value of the wider course. Miss Salmon has also rendered untold service in pointing out specifically the material which is best capable of development in later phases of the subject. The skilful grade teacher knows what fits her pupils, because she can try it first-hand and find out; but she needs the help of the specialist to enable her to see the work from the standpoint of the future.

The only points in the arrangements of history material which will be challenged by the practical teacher, are the adjustment of the grades to the stages of instruction outlined on p. 46, and the specific work assigned to the fifth and sixth grades on p. 55.

It is easy to divide eight or twelve years of education into fours.

¹The following papers by Miss Lawrence, Mr. Page, and Mr. Frank McMurry have a direct bearing upon the paper of Miss Salmon in the previous YEARBOOK.

Our old four years' primary school, four years' grammar school, and four years' high school exemplify this arbitrary division. The suggestion that the stages of a child's mental growth fit this mathematical harmony, should make us suspicious. It is too easy. Mental growth is too complex and too irregular to allow of uniform segments of time. Granted, that all growth is gradual, it is still admitted that there are epochs in child-development when the point of view changes most rapidly. During the school age both physical and mental changes are most marked at eight or nine, and again at thirteen or fourteen. Are not these the periods when the greatest changes should be made in the material of instruction?

The change from the dramatic stage of fancy to the critical age of doubt, and demand for truth, which marks the American boy of eight or nine, is well provided for by Miss Salmon in the work on p. 54 for the third and fourth grades. The work planned for the fifth and sixth grades, however, shows a radical change in the character of instruction, for which there is no adequate occasion in change of the child's point of view. The boy of ten or eleven is still in the "Big Injun" period. He lacks the power of social co-operation. Instead, he is self-assertive. His attention is wholly occupied with the individual, not with the social unit. Imaginary heroes must be athletes and fighters, not founders of states—Daniel Boone, not Thomas Jefferson. Is it not a mistake to expect this boy to understand, even in a childish way, such historical units as Sparta, Athens, or Virginia? He is interested in narrative, in picturing habits, customs, and occupations of any people. He loves a hero, but it will still be Julius Cæsar, not Rome; still Charlemagne's prowess, with scant conception of his work in founding an empire.

It is the same in the sixth grade. The pupil will delight in knight stories, in vivid pictures of life in the mediæval castle, or in the details of the crusades. He will read *Ivanhoe*, *Talisman*, and *Black Arrow*. Nevertheless, the weakening of feudalism, and the beginnings of the nations of France and England, will remain beyond his understanding, no matter how much the concepts are simplified.

Miss Salmon's outline for these grades is no more difficult than other outlines have been. Everywhere—these children are expected to appreciate the historical units of the state—or at least the colony; and everywhere the practical teacher finds them failing to meet such a demand. These children are known to be resting both physically and mentally, storing up energy for the great demands made by the enor-

mous changes taking place at puberty. Why not frankly recognize that this is still the period where the concrete holds sway—a time when an invaluable foundation of correct images should be laid, accompanied by the formation of correct habits of speech and written language. Stories of individual life during the periods suggested by Miss Salmon may now be taken chronologically, making the time relation prominent; but other relations will be lost sight of, as surely as the historical preface is skipped for the story.

The seventh grade usually marks the transition to another period of growth. The pupil now learns what a social unit is, by subordinating himself to the interests of the group. The age of loyalty has dawned, of self-sacrifice, even if it is only manifested in the football team. Concepts of social and historical units become possible. If the work of fifth and sixth grades is now reviewed, the relations will rise into consciousness—the state will explain the hero.

The points of difference between such an arrangement and Miss Salmon's course of study can be best shown in the comparison of the following outline with that given on p. 46.

Age	Grade	Predominant Mental Trait	Object	Material
6 7	I II	Fancy	To give vivid pictures	Mythology
8 9 10 11	III IV V VI	Imagination	To form correct images	Biography
12 13 14	VII VIII IX	Enthusiasm	To form ideals	First circle of history

By EDWARD CARLTON PAGE, NORTHERN ILLINOIS NORMAL SCHOOL,
DeKALB, ILL.

TEACHERS of history are under distinct obligations to Miss Lucy M. Salmon for her admirable paper on the "Teaching of History" in the last number of the YEARBOOK. Her treatment of the subject is fresh and her discussion of principles is stimulating. It is surprising how comprehensive a treatment is given in so brief an essay. How-

ever, we must take issue with the author in regard to several of her conclusions. Our present purpose is to criticise in two particulars only.

Miss Salmon seems to regard the only "scientific" justification for history in the school curriculum to be as a "means of mental education." It is true, she has a distinct place for an appeal to the "enthusiasms" of the pupil, but it seems to be more an excitement of the interest and admiration than the development of an informing power for the transformation of character. To her, patriotism is mainly "magnifying the deeds" of our ancestors. In another place she calls it "factitious" and "spurious" and says it "seeks to present distorted ideas of the past with the idea of glorifying one country at the possible expense of truth." She says "it must be illogical" to use the same facts of the Revolution to teach patriotism to both Englishman and American. Is not Miss Salmon's definition of patriotism itself "factitious" and "spurious"? Has she not created a man of straw in order to knock it down? Can she not conceive it possible "logically" to use the same *unperverted* facts to foster patriotic sentiment in the hearts of northerner and southerner alike? Does she not know teachers who are "scientifically" using history to develop sterling character in the boys and girls of our land? We, for our part, cannot regard it unscientific to train the heart as well as the head.

But our chief criticism is in regard to the course of study in history recommended by Miss Salmon. We must regard it as both theoretical and unscientific.

One of the chief justifications of history in the curriculum is that it is essential for proper training for citizenship. We do not mean "citizenship" in any narrow, technical sense. But we refer rather to that training which fits the individual in the largest measure for his place among his fellows. We, as Americans, believe that our civilization is (upon the whole) the best the world has produced. It *is* the best *for us*, at any rate. In order that we may fit ourselves to our institutions, in order that we may know what privileges we may demand and what duties we should perform, it is essential that we know what are our institutions, how they came to be what they are, and what was the spirit that animated the men who had a part in building those institutions. The necessity for imparting this knowledge in the schools is doubly evident when we recall the large element of foreigners which is continually coming to us with almost no knowledge of

our national characteristics. Furthermore, a large proportion of the pupils drop out of our schools early in their course. It is said that not more than one-half remain after their tenth year and that only a very small proportion remain through the grammar school. Notwithstanding these facts, we are advised to exclude American history almost wholly till the eighth grade! Under such a system we should be fortunate indeed if one out of ten of our voters knew anything of the institutions which they are expected to maintain by their suffrage. They might indeed have some knowledge of Lycurgus, Agricola, Frederick Barbarossa, Palissy, Francis of Assisi, and possibly of the Grand Khan of Borrioboola Gha, but very little would they know of the founders, the builders, and the preservers of our republic and of the institutions they have left to our care. What little they might know they would not obtain from the people's schools. This one fact alone should condemn the proposed course in history.

Besides being theoretical, Miss Salmon's proposed course of study is also unscientific, because it ignores the familiar rule by which we approach the unknown from the known. Our pupils, as a rule, from their earliest childhood hear mentioned continually, in their homes and among their fellows, the familiar names and events of our history. Even the youngest pupils come to the oral, elementary history with a distinct impression that they are learning about those with whom they have had at least some acquaintance. Children of foreign parentage, almost sooner than the native born, come to a general knowledge of some of the chief factors in our history. Furthermore, the men of our history were of character similar to that of the men the pupil sees about him every day, and they did deeds such as the men about us might naturally do. With such a basis of the familiar, the teacher has an immense advantage in presenting American history as contrasted with the difficulty in teaching that of other countries. At the bottom we find the same psychological reasons that impel us to begin geography with the home environment and science with the commonly observed phenomena.

We would not be understood as advocating the exclusion of history other than American from the elementary grades. In various ways, which we need not here consider, there are opportunities for acquainting pupils more or less with the great world-characters. We do insist, however, that most of the history taught in the grades ought to be American history, and that it ought to be introduced in an elementary form early in the course.

Finally, we consider Miss Salmon's course of study unscientific in that she relegates unified, related history almost exclusively to the high school and beyond. We should not expect pupils in the elementary school to be Hegels, but we do know that, in the eighth and seventh, and even in the sixth grade, pupils take great satisfaction in learning the reasons for events. They are quick to apprehend motives, often far beyond our expectations. We know from abundant experience that the most absorbing interest is aroused among pupils in the grammar grades by devoting large attention to cause and effect. In this way, and in this way alone, are *intelligent* "enthusiasms" aroused.

By F. M. McMURRY, TEACHERS COLLEGE.

THE most fundamental problem that I see involved in Miss Salmon's discussion is the question: Shall the nature of the child determine the selection of subject-matter in history? Immediately after deciding upon the predominant characteristics of each period of school life, she sets to work to choose corresponding material on that basis. But the question is: Is her point of view correct?

Certainly her point of view could not be accepted for the determination of a course in arithmetic. In this field the controlling idea is, what quantitative facts are necessary for *social living*? and under the guidance of social needs or requirements along that line, we are now ruling out some topics, as greatest common divisor, compound interest, etc., and placing additional emphasis on others, as on decimal fractions. The nature of the learner is, indeed, a factor in the make-up of the course for it greatly influences the sequence of topics and the time when a particular one shall come, but it enters in as a factor only after the topics themselves have in the main been selected. In other words, in determining a course of study in arithmetic, the nature of the learner and his interest are at best second in influence to social needs.

Should not this same thought apply to history? The conviction is growing more and more prevalent that every study should identify the child with his social environment; that should be the end point, the culmination of each study. This demand, if carried out, would effect a great change in history-teaching, for it would throw most emphasis

on those topics that are most abundantly related to the present time and present interests. Warlike deeds would, then, be worthy of much less attention than heretofore, and topics pertaining to industry, education, and social progress in general would be far more prominent. Yet, on p. 56 of this article, military events are given their old place. The text reads:

If, to a certain extent, military operations occupy a place in the foreground, it is because it is physical, rather than moral, heroism that first appeals to him [the child], that his first heroes have more often than otherwise been military heroes, and that in his first complete survey of the world's history he seeks a background for these heroes.

It is true that the child at this age is readily interested in this kind of matter. But other things are of interest to him, too. Remember how Barnes's *History of the United States* used to insert a few pages of fine print at the close of each chapter, describing the social ideas and customs pertaining to industry and education, etc., and how interesting that was to everyone. Much of the most interesting matter in manual work in the middle grades of the elementary school at the present time deals with the industries carried on about us. There need be no fear, therefore, that many topics very different from those that we have been having would prove thoroughly interesting. Indeed, the fact that they have abundant relation to the present time is one of the best guarantees that they will be interesting.

But my main contention thus far is that the nature of the child should not be the sole or even the main guide in selecting subject-matter—that involves an overemphasis of psychology. Our first aim should be to choose topics that bear strongly on the present, and then, having done this, we may set to work to select from these many the few that are best adapted to each age of children. I am merely urging the social point of view in making this statement.

The point of view represented by the article is peculiarly individual. So far as I remember, there is scarcely a reference to society or to a need of subject-matter that is less individualistic. The child is "the whole thing" from the start and keeps that prominent place throughout. For example, note the sentence on p. 38:

The starting point is the child with the same mental endowment he has in later life; the objective point is the mature student fully equipped for mature research, original investigation, and philosophical conclusions.

Read this with the sentence that precedes it.

Is there not another objective point, namely, adaptation to environment? And is it not *the* purpose of history, not merely "to train the mind," but to identify the child in knowledge, interests and activities, with what is going on about him? The mental training is a by-product. It will never do to make out a curriculum by fastening our eyes on the learner alone and then selecting those topics that seem best to correspond to his nature. That is accepting almost in full the "harmonious development of all the faculties" as the statement of the aim of education, and we have certainly already advanced beyond that point; we are becoming less individualistic than that. Think of selecting a course of study in housekeeping solely on the basis of the mental characteristics of the child! Instead, we first consider what kinds of kitchens and houses we live in, what dishes we prepare, etc., and then, having found out the main pieces of work necessary in good housekeeping, we are greatly influenced in further selection and in arrangement by the peculiar nature of children. In other words, the nature of the child is the second factor in influence. So in selecting a curriculum in history we should first look away from the child into the field of action and inquire what is wanted there, what portions of the work there necessary may best be presented in history. For instance, methods of making fire and cooking meat are live topics of the present time; they were also important with the Indians, and one question in history might well be: Shall the study of Indian life take up these two topics with the view of showing in some detail what a struggle the human race has passed through before arriving at its present knowledge along these lines? If this were deemed advisable, the next step would be to assign this work to the grade best suited to it, possibly the third grade.

Again, in the study of the Puritans the problem arises: Shall their home life and the occupations of their boys and girls be carefully investigated for the sake of comparison with our own times? Shall their industries, their methods of transportation, their religious customs, etc., be studied with the same purpose in mind? Our histories, heretofore, have often dealt with the political life of those people in such a way as to give the impression that they spent the major portion of their time talking politics. Is a great change in subject-matter desirable, and if so, what shall it be, and why?

What answer does Miss Salmon give to these problems? So long as the development of imagination and of enthusiasm is the control-

ling aim, in the grades anything within a very wide range might be accepted and much of it might or might not throw a flood of light on present living. Her standard is so broad that it is scarcely a basis of selection at all.

If we are in earnest in trying to fit the child, through the school, for active, successful work in his environment, we must choose a course of study that will really hit that environment. We must take the greatest pains to select those topics in history that most fully meet actual needs, and that certainly involves a much severer test of worth of subject-matter than has been urged in Miss Salmon's article.

It will be a long time to be sure before that test is satisfactorily applied, but we should be working in that direction at least.

In the second place, even if the point of view represented by the article were accepted, a query arises immediately about the child-study on which the selection of subject-matter is based. That is an extremely difficult problem, and possibly the only way is to do as Miss Salmon has done, namely, to propose one's views and proceed. But there is cause for fear and trembling, for it is unscientific and unsafe. For instance, Miss Salmon sets out (p. 35) to train the imagination in the primary grades, to cultivate enthusiasm in the grammar grades, to secure integration of facts and ideas in the high-school period, and to train the judgment during the college course. Effort in this last direction is largely postponed till this time, because (p. 45) "the judgment, whose exercise up to this time has been largely held in suspense, now [in college] finds scope for its action." No doubt it is generally true that college students have better-developed judgment than those younger; but many persons would assert that *growth* in judgment is more striking in childhood than later. Habits are then *beginning* to be formed, and tests of judgments are, therefore, abundant and vital. It is common for children, as well as adults, to distinguish themselves by their good sense and balance. Why then postpone the main effort to affect judgment until one is grown? This entire diagnosis of the child must be far better based than it yet is, before it can begin to be accepted as a guide for selection of subject-matter.

Finally, the curriculum that Miss Salmon actually offers is, of course, the main matter of interest. Her recognition of the need of close correlation between history and other studies is most acceptable, and her evolution of biography is of great importance. But the concentric-

circle plan, to which she so heartily subscribes, and her relative neglect of American history, are both points worthy of much discussion.

This is not a suitable place for the lengthy discussion of these matters. But her reference to European countries in regard to the concentric-circle plan cannot pass unnoticed. The most abundant and forcible opposition to this plan that I have ever experienced was met in Germany itself. And the poorest history work that I ever saw was found in Paris, where this scheme of arrangement was followed. It may well be a question, therefore, whether the practice in Germany and France in this matter is due to the progressiveness or the backwardness of the authorities in educational affairs.

As to European history in our common schools, while I favor some of it—wanting a broader outlook than the study of our own history alone would allow—I should be quite unwilling to limit the latter to a portion of the fourth year of school and to the eighth year. I should much prefer to make American history the central line throughout the grades, and trace the causal series back to Europe when necessary—although I recognize that this plan is very difficult of proper execution.

THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION.

MINUTES OF MEETINGS FEBRUARY 26 AND 27, 1902.

BUSINESS MEETING, 7:30 P. M., WEDNESDAY, FEBRUARY 26.

(Club Rooms 2 and 3, Auditorium Hotel.)

President Butler being absent, Dr. Charles De Garmo was chosen temporary chairman.

In harmony with the spirit and purpose of the Society it was decided that the qualifications for membership would properly limit the number of members, and it was therefore voted to remove the number limit, which had previously been fixed at one hundred.

The Secretary was advised and authorized to revise and correct the list of members each year.

There was some discussion of more definite qualifications for membership. A recommendation was submitted to the Executive Committee.

The form of application for active membership was adopted :

Application for Membership in the
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY
OF EDUCATION

Name and Address in Full _____

Place and Time of Academic Training_____

Degree or Degrees, if any_____

Present Position_____

Now at Work on what Problem, or what in Contemplation?_____

Publication, if any?_____

Name of Member Nominating the above Candidate for Membership_____

N. B.—It is expected that each member of the Society will engage in some form of scientific study of education, and that he will contribute from time to time a short paper stating the progress or results of his investigations.

The Executive Committee was instructed to arrange the regular meetings of the Society on the day preceding the first day's session of the National Educational Association and the meeting of the Department of Superintendence.

The Executive Committee was advised and authorized to revise the Constitution of the Society in such respect as to make it consistent with the above action, and in such other respects as seem advisable, and submit the same to the next business meeting of the Society.

The following officers were elected:

For *President*—Nicholas Murray Butler. For *Secretary-Treasurer*—Charles A. McMurry. For *Members of Executive Committee*—David Felmley, William L. Bryan.

OPEN MEETING, 2:00 P. M., THURSDAY, FEBRUARY 27.

(Lecture Hall, fourth floor Fine Arts Building.)

President Nicholas Murray Butler in the chair.

This meeting was devoted to discussion of Miss Lucy M. Salmon's monograph on "Some Principles in the Teaching of History."

After introductory remarks explaining the nature and purposes of the National Society for the Scientific Study of Education, President Butler asked Miss Salmon to introduce the discussion with a résumé of her argument in the monograph. This was followed by a vigorous and thoughtful discussion of more than two hours in length. The chief participants were the following: Dr. Frank M. McMurry, Columbia University, New York, N. Y.; Superintendent Greenwood, Kansas City, Mo.; Superintendent James H. VanSickle, Baltimore, Md.; Professor Reuben Post Halleck, Louisville, Ky.; President Z. X. Snyder, Greeley, Colo.; Professor John Dewey, University of Chicago; Professor Wilbur S. Jackman, University of Chicago; Dr. Colin A. Scott, Greeley, Colo.; Professor E. C. Page, State Normal School, DeKalb, Ill.; Miss Laing, State Normal School, Oswego, N. Y.; Manfred J. Holmes, State Normal University, Normal, Ill.

An earnest desire to discuss the topic further led to the calling of two extra meetings, the first to be held at 8 o'clock Thursday evening, and the second at 9 o'clock Friday morning.

These extra adjourned meetings were characterized by close and progressive discussion.

MANFRED J. HOLMES,
Secretary pro tempore.

REPORT OF MINNEAPOLIS MEETING, JULY 9, 1902.

MINUTES OF THE MEETING.

Dr. Edward Shaw, presiding, called the meeting to order at 3 o'clock P. M. Few, even active, members were acquainted with Professor Davis's paper on "The Progress of Geography in the Schools." YEARBOOKS were distributed, and one member presented a topical analysis of the paper. Vigorous and profitable discussion followed.

Those taking part in serious discussion were : L. E. Wolfe, Arthur G. Clements, Edward R. Shaw, C. B. Gilbert, Miss Brown, of Washington, D. C.; Mrs. Mary R. Davis, Mr. Birge, of Teachers College ; Mr. Martin, of Kansas City ; Mr. Tarbell, Miss Lawrence, George M. Smith, M. J. Holmes, and David Felmley.

In order to carry the question of geography in the schools beyond the stage of discussion, and to justify the existence of the Society on a practical scientific basis of work, the following motion was unanimously adopted :

That the Executive Committee of this Society select a committee representative of university, college, normal-school, high-school, and elementary education, for the purpose of bringing about a better recognition of value and importance of geography in these classes of schools, and to report a plan for more effective organization and presentation of this great subject in our school courses.

An important meeting for the discussion of Professor W. M. Davis's paper on geography was held at Columbia University during the summer session of 1902. A number of active members of the Society who had thoroughly studied the papers were present and joined in the discussion. Among these were Richard Dodge, Rudolph Reeder, Frank M. McMurry, Ernest M. Henderson, John Hall, and Charles A. McMurry. About two hundred and fifty students of Columbia University were present during the two hours' discussion. The great advantage of thorough preparation by careful reading of the paper was unusually manifest. The active members of the Society must cultivate this habit, or its meetings will lose three-fourths of their strength.

LIST OF ACTIVE MEMBERS.

- Frank G. Blair**, State Normal School, Charleston, Ill.
Richard G. Boone, superintendent, Cincinnati, O.
Francis B. Brandt, Central High School, Philadelphia, Pa.
Elmer E. Brown, University of California, Berkeley, Calif.
George P. Brown, editor, Bloomington, Ill.
Martin G. Brumbaugh, commissioner of education, San Juan, Porto Rico.
William L. Bryan, University of Indiana, Bloomington, Ind.
George V. Buchanan, 614 W. Seventh street, Sedalia, Mo.
Edward F. Buchner, New York University, New York, N. Y.
Frederick Burk, State Normal School, San Francisco, Calif.
Nicholas Murray Butler, Columbia University, New York, N. Y.
C. P. Cary, Wisconsin School for the Deaf, Delavan, Wis.
Clarence F. Carroll, superintendent, Worcester, Mass.
John W. Cook, State Normal School, De Kalb, Ill.
Ellwood I. Cubberley, Stanford University, California.
Washington S. Dearmont, State Normal School, Cape Girardeau, Mo.
Charles DeGarmo, Cornell University, Ithaca, N. Y.
John Dewey, University of Chicago, Chicago, Ill.
Edwin G. Dexter, University of Ill., Champaign, Ill.
Richard E. Dodge, Columbia Unievrsity, New York, N. Y.
F. B. Dresslar, University of California, Berkeley, Calif.
Samuel T. Dutton, Columbia University, New York, N. Y.
Charles B. Dyke, Kamehameha School, Honolulu, Hawaii.
W. H. Elson, superintendent, Grand Rapids, Mich.
David Felmley, State Normal University, Normal, Ill.
Frank A. Fitzpatrick, publishers' agent, Boston, Mass.
Charles B. Gilbert, superintendent, Rochester, N. Y.
Newell D. Gilbert, superintendent, De Kalb, Ill.
J. P. Gordy, Ohio State University, Columbus, O.
James M. Greenwood, superintendent, Kansas City, Mo.
William N. Hailmann, superintendent, Dayton, O.
Reuben P. Halleck, Boys' High School, Louisville, Ky.
Rufus H. Halsey, State Normal School, Oshkosh, Wis.
Walter L. Hervey, Department of Education, New York, N. Y.
Edgar L. Hewett, Normal University, Las Vegas, N. M.
M. J. Holmes, State Normal University, Normal, Ill.

- Wilbur S. Jackman, Chicago Institute, Chicago, Ill.
Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.
Lewis H. Jones, superintendent, Cleveland, O.
Charles H. Judd, Wesleyan University, Middletown, Conn.
Grant Karr, State Normal School, Oswego, N. Y.
J. A. Keith, State Normal School, De Kalb, Ill.
Ossian H. Lang, editor, New York, N. Y.
George H. Locke, University of Chicago, Chicago, Ill.
Livingston C. Lord, State Normal School, Charleston, Ill.
G. W. A. Luckey, University of Nebraska, Lincoln, Neb.
Frank A. Manny, Ethical Culture School, 109 W. Fifty-fourth street, New York, N. Y.
Guy E. Maxwell, State Normal School, Winona, Minn.
William H. Maxwell, superintendent, New York, N. Y.
Charles McKenny, State Normal School, Milwaukee, Wis.
Charles A. McMurry, State Normal School, De Kalb, Ill.
Frank M. McMurry, Columbia University, New York, N. Y.
Israel C. McNeill, State Normal School, West Superior, Wis.
Will S. Monroe, State Normal School, Westfield, Mass.
Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
John T. Prince, state agent, West Newton, Mass.
Ernest C. Moore, University of California, Berkeley, Calif.
Frank Morton, Lowell High School, San Francisco, Calif.
Theodore B. Noss, State Normal School, California, Pa.
Michael V. O'Shea, University of Wisconsin, Madison, Wis.
Charles R. Richards, Columbia University, New York, N. Y.
Stuart H. Rowe, supervising principal, New Haven, Conn.
James E. Russell, Columbia University, New York, N. Y.
Myron T. Scudder, State Normal School, New Paltz, N. Y.
Levi Seeley, State Normal School, Trenton, N. J.
Edward R. Shaw, New York University, New York, N. Y.
David E. Smith, Columbia University, New York, N. Y.
Z. X. Snyder, State Normal School, Greeley, Colo.
F. Louis Soldan, superintendent, St. Louis, Mo.
Edward D. Starbuck, University of California, Berkeley, Calif.
W. S. Sutton, University of Texas, Austin, Tex.
C. C. VanLiew, State Normal School, Chico, Calif.
James H. VanSickle, superintendent, Baltimore, Md.
Samuel Weir, New York University, New York, N. Y.
John J. Wilkinson, superintendent, Galesburg, Ill.
Lightner Witmer, University of Pennsylvania, Philadelphia, Pa.
L. E. Wolfe, superintendent, San Antonio, Tex.

ACTIVE MEMBERS ELECTED IN 1902.

- Edwin A. Alderman, president of Tulane University, New Orleans, La.
- Frederick E. Bolton, State University of Iowa City, Ia.
- Orville T. Bright, Englewood, Ill.
- B. C. Caldwell, president of Louisiana State Normal School, Natchitoches, La.
- Philander P. Claxton, University of Knoxville, Knoxville, Tenn.
- Frank W. Darling, 320 W. Sixty-first place, Chicago, Ill.
- Edwin G. Dexter, University of Illinois, Champaign, Ill.
- Newton Charles Dougherty, Peoria, Ill.
Augustus S. Downing, One Hundred and Nineteenth street and Second avenue, New York, N. Y.
- Paul Henry Hanus, Harvard University, Cambridge, Mass.
- Mrs. Josephine Heermans, Kansas City, Mo.
- John R. Kirk, Kirksville, Mo.
- Henry E. Kratz, superintendent, Calumet, Mich.
- Mary Elizabeth Laing, Wellesley College, Mass.
- Miss Isabel Lawrence, State Normal School, St. Cloud, Minn.
- Charles D. Lowry, 307 Touhy avenue, Chicago, Ill.
- Herman T. Luckens, Normal School, California, Pa.
- Eliphalet Oram Lyte, president of State Normal School, Millersville, Pa.
- David R. Major, Ohio State University, Columbus, O.
- C. E. Mann, superintendent, St. Charles, Ill.
- J. F. Millspaugh, State Normal School, Winona, Minn.
- Paul Monroe, Teachers College, Columbia University, New York, N. Y.
- Wm. H. Payne, University of Michigan, Ann Arbor, Mich.
- John Herbert Phillips, superintendent, Birmingham, Ala.
- Miss Lucy M. Salmon, Vassar College, Poughkeepsie, N. Y.
- Howard Sandison, State Normal School, Terre Haute, Ind.
- Colin A. Scott, Normal School, Greeley, Colo.
- H. W. Shryock, State Normal School, Carbondale, Ill.
- Herbert M. Sluson, superintendent, Ann Arbor, Mich.
- ✓J. W. Stearns, University of Wisconsin, Madison, Wis.
- ✓Joseph S. Taylor, 344 E. Fourteenth street, New York, N. Y.
- Charles H. Thurber, editor for Ginn & Co., 29 Beacon street, Boston, Mass.
- J. F. Turner, Madison, Wis.
- Sarah J. Walter, State Normal School, Willimantic, Conn.
- Allen S. Whitney, University of Michigan, Ann Arbor, Mich.
- J. N. Wilkinson, president of State Normal School, Emporia, Kan.
- Mrs. Ella F. Young, University of Chicago, Chicago, Ill.

THE SECOND YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART II

THE RELATION OF THEORY TO PRACTICE IN EDUCATION

MANFRED J. HOLMES, LEVI SEELEY,
AND JOHN A. KEITH

MEETINGS OF ACTIVE MEMBERS FOR THE DISCUSSION OF THESE PAPERS WILL BE
HELD AT BOSTON, BRUNSWICK HOTEL, MONDAY, JULY 6, 4:00 P.M.,
AND TUESDAY, JULY 7, 9:00 A.M., 1903

EDITED BY
CHARLES A. McMURRY

CHICAGO
THE UNIVERSITY OF CHICAGO PRESS
1903

NOTICE TO ACTIVE MEMBERS.

There will be two meetings at Boston for the discussion of these papers by the active members. It is requested that the active membership as far as possible attend these meetings and come prepared for careful discussion.

In the Summer Sessions of Normal Schools and Universities, in different parts of the country, meetings will be held for the discussion of these papers.

Those holding such meetings should send to the University of Chicago Press for books to be sold at such meetings. Any of the previous **YEARBOOKS** of the society or of the former National Herbart Society can be secured from the University of Chicago Press, Chicago, Illinois.

OFFICERS AND EXECUTIVE COMMITTEE
OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF
EDUCATION

WILBUR S. JACKMAN, School of Education, University of Chicago, *President.*
CHARLES DE GARMO - - - - Cornell University, New York
WILLIAM L. BRYAN - - - University of Indiana, Bloomington, Ind.
DAVID FELMLEY - - - State Normal University, Normal, Ill.
C. P. CARY - - - State Superintendent, Madison, Wis.
CHARLES A. McMURRY, Northern Illinois State Normal School, DeKalb,
Ill., *Secretary-Treasurer.*

PREFACE.

These papers on the Relation of Theory to Practice in Education form Part II of the YEARBOOK for 1903.

The same topic will be further discussed in the papers to be published in Part I of the Third YEARBOOK, which will be published for discussion at the Atlanta meeting in February, 1904.

The present papers are chiefly devoted to the discussion of the Normal School Problem. Those of the following YEARBOOK will treat the subject from the standpoint of the University.

CONTENTS.

	PAGE
The Relation between Theory and Practice in the Training of Teachers. A paper prepared by the Faculty of the State Normal University, Normal, Ill.; David Felmley, Miss Elizabeth Mavity, and Manfred J. Holmes, Committee - - - - -	9
Paper by Levi Seeley, State Normal School, Trenton, N. J. - - - - -	39
"General Plan for the Study of the Relation of Theory to Practice," by John A. Keith, Northern Illinois State Normal School, DeKalb, Ill. 58	58
Minutes of the last Meeting at Cincinnati, February 25, 1903 - - - - -	60
List of Active Members - - - - -	61

THE RELATION BETWEEN THEORY AND PRACTICE IN THE TRAINING OF TEACHERS.

PRESENTED BY THE FACULTY OF THE STATE NORMAL UNIVERSITY, NORMAL, ILL.¹

INTRODUCTION.

The specific problem under discussion.—Ever since normal schools were called into existence they have had the benefit of adverse criticism. The most helpful criticisms have always come from the really able and earnest men in the public schools and the field of higher education, and from the progressive men in normal-school work.

In a recent address before the National Educational Association, President Butler of Columbia University said :

Two generations ago it became patent to the people of this country that mere scholarship was not a sufficient preparation for teaching, and schools came into existence whose object it was to prepare teachers by a study of method. That was a desirable, indeed a necessary, reform, if the schools were to increase in efficiency beyond the point they had then reached. But I am clear that that movement has now gone too far, and that teachers of method have now become enamored of method for method's sake. They have forgotten that method is a means and not an end, and their fine-spun analysis and long-continued preparation is like placing a great, huge vestibule before a very small and insignificant house. It makes education wasteful in a very high degree.

Perhaps this is the most general, as well as the most serious, of all the charges brought against the normal school. It is said to be "top-heavy" in theory: that its courses present a great body of theory which does not find concrete embodiment in the normal school itself nor in the actual school work of normal teachers; it wastes its energies in striking the air.

That such charges have usually been exaggerations there is no question, but there has always been enough truth in them to keep the schools examining the reasons for their existence and, in the light of clearer understanding, readjusting themselves to render a maximum of substantial service. Each individual normal school has been taking form under the pressure of its own local environment; hence

¹Committee making the report: President David Felmley, Professor Manfred J. Holmes, Miss Elizabeth Mavity.

many local varieties have been produced. Today there is not one, probably, certainly not one of the better schools, that is satisfied with itself; and it is believed that comparison and discussion, and a frequent measuring of the normal school as it actually is with what it ought to be will help to promote right development and efficiency.

A specific form of the above criticism is that the theories and methods taught by the various departments are not put into practice by the student when he teaches in the training school. It has been thought that the general criticism can be met by answering this specific form of it. If the normal-school instructor holds himself responsible for understanding just what is needed, and what is practicable, in the public schools; if he remembers that his department exists only for the purpose of contributing to his student's power, resources, and skill in teaching in those schools; and if the student's teaching in the training school measures the value and tests the practicability of the instructor's work, and is its final stage—then he will abandon unpractical theory and be anxious to supervise this final stage of his own work under conditions over which he himself has at least co-operative control. Guided by this thought, more and more normal schools have been getting their training schools and normal departments organized into closer working unity.

Purpose and scope of this paper.—This paper is a report rather than a discussion, and is submitted to the Society for the Scientific Study of Education in response to the invitation to the Society's executive committee, with the hope that it will receive the critical study of really serious students of education, and thereby, through discussion and comparison, promote improvement in this decidedly unsettled problem of educational work. The report aims to show the relation between theory and practice in the training of teachers as that relation exists in the normal school. It does not assume to speak for all normal schools; but simply tries to show how one school is trying to solve the problem of the relation between theory and practice by bringing about a close and effective unity between the instruction in the normal classes and the work in the training school.

The report is organized under the following topics:

- I. The function of the normal school.
- II. The organization as determined by its function.
 1. The course of study.
 2. The equipment.

3. The faculty.
 4. The working program.
- III. The work of the normal department as related to the training school.
1. General pedagogy.
 2. Special departments, illustrated by
 - a) Literature.
 - b) Geography.
- IV. The training school.
- V. Limitations.

THE FUNCTION OF THE NORMAL SCHOOL.

Rational origin of the normal school.—Whatever calls a thing into existence is the key to an understanding of its purpose. It has always been recognized that the rulers of a state should be educated; therefore, in a self-governing society all the people should be educated. We are also familiar with the dictum that it is the duty of the state to educate its citizens. This duty carries with it the necessity of establishing schools and supplying the teachers. Everybody in this day accepts the proposition that teachers must be specially educated and trained to do their important and difficult work. Hence the American normal school has been called into existence to do this special service—to contribute to the realization of the American ideal of what it is to live.

Its technical function in "training" teachers.—“The purpose of the normal school is to fit its students for teaching children. It is a technical school in which knowledge is held of value as it ministers to an art. What anatomy is to the surgeon or mathematics to the engineer, the various branches of study are to the teacher. In a sense they are the instruments of his art. No teacher can really be at home in his profession until he feels that the value of every subject, topic, or question is to be found in its influence in the development of the child; that lessons are to be judged, not in their individual nature, but in their final outcome. In the normal school the various branches of study are to be organized in the consciousness of the student, not so much with regard to their inner logical relations as with regard to the interests and aptitudes of children. The question is not merely, What is this body of thought we call geography? for example; nor yet, What portions are of most practical worth? but, How shall the child proceed

in acquiring this knowledge? What is the value of these experiences in his unfolding life? Normal-school instructors should feel that their departments exist only that teachers may be prepared for their work."

/ *Its cultural function in the education of teachers.*—While the above is universally accepted as true and marks off the normal school in its distinctive character, yet every thoughtful person knows that strictly scientific training is only a part of what makes a teacher. Personal quality and social worth, all those finer elements that go to make up the better type of manhood and womanhood—these are absolutely indispensable in the make-up of a teacher. Therefore the general culture studies—all those that give a broader and more accurate view of the world and enlarge the sympathies—are justifiable in the normal-school course in so far as they help to make the student a more efficient teacher. We must still keep in mind that, while the subjects are acquired as the instruments of teaching, they must serve as means for the education and cultivation of the would-be teacher himself. The normal student needs the educative influence of natural science, history, the social sciences, literature, and art, and to live as much as possible in the atmosphere of these phases of truth and life. These are the influences that mature the natural endowments of personality.

Summary.—It is common knowledge that the highest degree of efficiency in any work can be attained only when the workman has a clear notion of the purpose of his work, the nature of the means or instruments he must use, the nature of whatever he is to transform or change, and the nature and mode of the process by which the transformation is to take place. Such preparation for the work of teaching is the distinctive function of the normal school; but along with its work of technical training it must carry, in as high a degree as possible, those influences that make for liberal scholarship and general cultivation.

THE ORGANIZATION OF THE NORMAL SCHOOL AS DETERMINED BY ITS FUNCTION.

/ *General principles.*—The law of adaptation of structure to function in a given environment is universal in organic life. It is equally valid in social and institutional evolution; but the fitness of an institution to survive is measured, not by its capacity for self-preservation, but by the extent to which it renders the service for which it was created. This should be kept in mind when examining the working organization

of any normal school; and there need be no surprise to find legitimate and necessary variety according to the local environment in which the school must render its expected service and thereby justify its existence. The normal school must be organized to face in two directions: first, it must keep before it actual conditions and needs in order to render immediate and substantial service; second, it must not take for its standard the current conditions and merely try to prepare teachers that will fit into the present order, but it should encourage and press forward advanced standards and ideals in every line and aspect of educational work, inspiring its students with zeal and initiative impulse to realize such ideals.

Course of study in the normal school.—There are provided :

1. Courses in general pedagogy.
2. Courses in special method of the various branches taught in primary and secondary schools, including art, singing, and manual training.
3. Additional courses providing for teachers means of liberal culture in physical and biological sciences, literature, history, art, music, economics, and other social sciences.
4. A course of training in practical teaching under close supervision of critic-teachers.

As in most western normal schools, provision is made for at least three grades of students.

- a) For graduates of the best city high schools is provided a curriculum, partly required and partly elective, extending over two years.
- b) For graduates of village high schools, teachers of maturity and experience, and others of equivalent preparation, is provided a curriculum three years in length.
- c) For students having little high-school preparation, including especially graduates of the state course of study provided for rural schools, is arranged a four-year curriculum.

These curricula contain the same required courses in general pedagogy and the same amount of practice teaching. They differ in the attention given to the academic phases of the work in special method and the number of possible elective courses providing general culture.

Equipment.—Since the normal school is largely to determine the standards of excellence that will be carried by its graduates into the public schools, it is of the highest importance that in all matters of material equipment it keep pace with the current progress in edu-

tional appliances. Its library should be well stocked, and contain practically everything in the way of books and pictures that can be of material value to the teacher. There should be an ample stock of maps, charts, and every other species of apparatus that is of real value. No small part of the furnishing of the teacher is an acquaintance with all available aids in instruction supplemented by skill in using them. The normal school itself as a whole and in detail should be a demonstration of the ideals it stands for, of every doctrine it advocates. If a certain principle or any other aspect of method, a course of study or any equipment, is advocated in science, history, literature, general pedagogy—by any department or any teacher—there should be means and opportunity to observe and study this in course of objective demonstration. Therefore a well-equipped training school is necessary which should first of all be a demonstration of the science and art of education under actual conditions of public-school work. The training school here consists of a kindergarten, of eight grades of the Normal public schools, and six classes in the high school. The teaching corps for this department is made up of the kindergartner, one regular critic-teacher for each of the eight grades, a supervisor of training, and the city superintendent, who has complete charge of the promotions and general charge of the discipline of the school and of all relations between the normal school and the local school board and the parents of the community.

For all students there are three terms of teaching in the training school. This teaching is put late in the course, in order to secure the maximum in scholarship and theory. The preliminary preparation for teaching in the training school has two aspects. It consists, first, of knowledge and special method of the studies taught in the public schools; second, of at least the first two terms in general pedagogy.

The faculty.—No matter how excellent the course of study may be nor how perfect the equipment, the success of a school will always depend upon its faculty. It is a question whether anyone can become a really successful normal teacher unless he has taught children. In all his instruction there must be in the background of his consciousness this knowledge of actual school conditions; he must know the practicable and possible in the schools of this generation. Teachers of the normal school must be men of ideals, who with prophetic vision behold what ought to be and is to be in education. At the same time

they must know that heaven is not gained at a single bound. With a clear comprehension of present conditions and tendencies, they can intelligently direct the line of advance.

The working program.—The working program aims to bring about such a working unity between the normal department and the training school as will make the whole normal-school process one, logically and psychologically, and not two isolated lines of work—instruction and theory on the one hand, practice on the other. Since the normal-school instructor regards the students' work in the training school as the final stage of his own work, we shall find him at work in at least two places—in his class-room and in the training school. In the class-room he is helping his students to acquire knowledge, ideas of method, principles and aims of education, habits of thought, and elements of character—all of which constitute a progressive preparation for teaching. In the training school he co-operates with the critic force in the supervision and criticism of the student-teachers, and carefully watches the working and effects of the course of study and suggests needed improvements in both selection and organization. We also find him in individual and collective conferences with the critic-teachers. This last aspect of his work is exceedingly important; for the economy and success of much of the work of both critic-teacher and head of department depend upon clear mutual understanding and close co-operation.

Certain essential requirements are imposed upon the working program: (1) Every part of it should be made to subserve the normal-school purpose as a whole. (2) It must recognize the legitimate and necessary part that each department and study should contribute to the work as a whole, and provide the needed opportunity. For example, the normal-school instructor should be free to visit the training school during the hour in which classes are reciting in his subjects. (3) As far as possible it should secure logical and psychological arrangement and sequence; for example, it should arrange to give instruction in subject-matter and theory of teaching a subject before the student is called upon to teach that subject in the training school; also, as much as possible of the general pedagogy should precede the teaching. Yet part of the theoretical work should be in progress while or after the student does his practice teaching; for just as his early pedagogy work helps to make possible his practice teaching, so in turn does that teaching illuminate any further study that he makes of method. (4) It

should bring all the parts and forces of the school into harmonious unity, free from mechanical conflict or hindrance. There should be the much-needed opportunity for conferences between the heads of departments and students and critics. The critic must know the point of view of the department with regard to subject-matter and with regard to method. The work of the practice school exemplifies the theory of the other departments. This can be achieved only so far as the critics know what goes on elsewhere. The normal-school instructor should also have time to do some teaching in the training school. It is a place for trial of method as well as for other purposes we have named. The theorist finds there whether his ideas will work. The heads of departments in consultation with the critics make the course of study for the training school. By visitation and conference they become thoroughly familiar with the practical working of the course. This reacts upon their teaching in their own classes. But for the best results in certainty of method the teachers of theory ought really to teach children. Opportunities for such teaching have not been frequent. When one of them has taught he has expressed this as a result: the teaching serves the threefold purpose of satisfying his mind as to the adaptability of his course to children, of giving him first-hand knowledge of the teaching of children, about which he is all the time theorizing in his normal classes, and of acquainting the critic with what she may expect in preparation of the student-teachers who come from his classes to work in her room. The same result of greater certainty of method on the part of both the head of a department and a critic is furthered by the attendance of the head of a department upon the illustrative model lessons, or "critiques," in his subject, and the occasional teaching of a class of children in such lessons—this entirely in addition to the teaching above mentioned. (5) It is not enough for the program merely to furnish the opportunity for these things. They must be looked upon just as a class-room recitation is looked upon, as duties, and the normal instructor will meet these duties with the same regularity and in the same spirit that he meets his class-room obligations.

THE WORK OF THE NORMAL DEPARTMENTS AS RELATED TO THE TRAINING SCHOOL.

In accordance with the foregoing principles and plan of organization, the normal instructor conceives his work as comprising the following results in the students:

1. Knowledge of the subject in itself and in relation to the development of child-mind. The knowledge of the subject-matter itself must comprise a full and accurate knowledge of its facts in their logical relation and of the principles of organization of the subject-matter; "a philosophic view of the subject as a whole and of its parts, involving the logical order and development of the subject as well as the significance or content of the same and of its parts." Such scholarship is essential as a prerequisite for the student's work in the training school. Lack of it, from whatever cause, will make lesson planning feeble, questioning poor, manner hesitating. It involves a manifest unfairness to the student-teacher, to his class, to the training department, and to the department in whose line he is teaching; to the student, because to teach a class at all with inadequate scholarship he must overwork and yet cannot reach appropriate results in knowledge of and power of handling the teaching problem; to the class, in that it is entitled to just as good instruction as it could have from a regular teacher; to the practice department, in that it must then shoulder work supposed to have been done elsewhere; and to the other departments concerned, because under the circumstances its methods cannot be exemplified and tested by the student-teacher's work, nor can its ideas through him make an impression upon the training school.

The student-teacher must be helped also to a knowledge of the educational values of the subject—of what it is good for in the development of a child's mind and character.

2. Sufficient practice in the organization of subject-matter to offset the fact that, owing to the shortness of the course in a normal school, it is inevitable that not every topic which the training-school course covers will have been treated in the normal classes. For example, there may have been in the normal class no detailed study of Africa, but the geography of North America will have been so treated that knowledge of the method of treating a continent shall be the result.

3. Knowledge of the processes and principles that underlie the learning and teaching of the subject and of what determines a good course in the subject for the elementary school.

4. Some familiarity with the way this work is actually done with and by children. This is secured partly by explanation, but largely by illustrative lessons and observation. The student will frequently be taken to the training school to see practical illustrations of the theories presented to him in the normal class-room. The teacher of

reading, for example, works out with her class an order of topics and appropriate mode of treatment for them, and then, with her class, watches a series of lessons with children, illustrative of progressive stages of the subject. These lessons are then discussed in the classroom and serve to clarify and fix the method in reading in the student's mind. The psychology class studies the laws of association, the nature of attention, the process of forming a habit, the nature of a concept, or the meaning of apperception in mental growth; and then goes to see a teacher of little children employing devices to secure right association, leading children to acquire a general notion, providing deliberately for habit, or making skilful drafts on the child's past experience preparatory to the making of a new experience. This helps the student to understand the truths of the method discussed in the normal classes. Here the training school lends itself directly to the service of the teachers of theory.

5. Cultivation and discipline; specifically, certain essential traits of mind, habits of thought, elements of character.

6. Power to put the fund of knowledge given by the teacher of theory into use, in a practical adaptation of it to a class of children. At this point the student is in the training school under the joint supervision of a regular critic and of the head of a department.

Summary.—(1) The normal instructor must have a definite aim—masses of knowledge, methods of instruction, intellectual processes, emotional states, standards of conduct and citizenship, habits of thought and action that he would see established in the public schools. (2) To realize this aim he must develop in his normal students a due knowledge of subject-matter, an appreciation of educational values, familiarity with principles and processes of teaching, a fitting sense of the teacher's responsibility, and such attitude toward teaching as shall fill their days with interest and delight. (3) To test this instruction he must follow his students into the training school; must keep in close touch with its activities, both by inspection and by direct participation.

The points of relation already indicated between teachers of theory and the practice department will appear in the following statements:

1. Of the departments of general pedagogy and psychology, philosophy of education, and school management.
2. Of two other typical departments of theory.
3. Of the training school.

FIRST TERM'S PEDAGOGY.

The first term's work in pedagogy has the problem of opening to the student's view the field of pedagogical study. He has engaged in lessons before ; he has (usually) never before asked himself the question, What is a lesson ? He is asked now to examine his ideas of the school and of the function of a teacher, and to discover, from remembered experiences of his own and from lessons which he watches in the training school, the character of the double process that goes on in a lesson. The line of study comprises :

1. The organic nature of the school.
 - a) Its aim as determined by the nature of human life.
 - b) The elements of the school: their general nature and their relation in the organism.
2. The simpler laws of the psychology of the teaching process. That phase of the process represented by the teacher is elaborated through discussion and illustrations from teaching. From this discussion are deduced the fundamental truths of the science and art of the recitation.

The sources of study are the student's own experiences, past and present, as a student; lessons observed in the training school; readings from those novels of Charles Dickens in which he depicts schools, and from other exemplifications of school work; and readings on theory from standard texts on pedagogy and psychology.

The ideas of the principles studied in this class are expected to form the nucleus of the general pedagogy and psychology; to grow into an intelligent and comprehensive knowledge of what it is to teach. Lesson plans are made and discussed, and plans used at the time by more advanced students are seen and studied. The work reacts upon the student in three ways directly pertinent to our paper : (1) in his practice work later in his course; (2) in his further work in general method and in psychology; (3) in the formation of a consciousness of intention in teaching that makes the student a more intelligent interpreter of whatever is done by his teachers in any department.

GENERAL METHOD.

General method covers the second and third terms of the five terms in general pedagogy. It is generally supposed that this is one of the chief fields where unpractical "theory" grows rankest. For this reason it seems best to show with some definiteness of detail in just what

respect the normal school seeks to equip its students with a body of knowledge and principles of method in education and teaching. In this statement it is also revealed how this theoretical instruction is followed up until, it is hoped, a good part of it becomes second nature in the mind of the teacher and a permanent practical guide in his work. But it is also expected that this work will make a valuable contribution to the student's view of the world, and contribute to his general cultivation as does any other study.

The field and scope of general method.—General method is marked off from the other studies of the normal-school course by having for its distinctive subject-matter *human development*. Its essential unity with the other studies is found in the process of human development by which the individual incorporates into his own life, in accordance with its own laws of development, the truth and life embodied in or represented by those other studies. Attention and interest are centered upon the *conditions, processes, and laws* of the child's development from infancy to maturity; from the mere possibilities of the higher physical, mental, social, and moral life through the progressive stages of self-realization along these characteristic lines.

Thus, in this genetic view of human development, general method finds the body of concrete fact from which it seeks to derive principles of the science and art of education. It should be noted that general method does not arrive at its conclusions by logical deduction from general assumptions; but, instead, it mainly follows the inductive thought-movement of discovery for its conclusions. There are, however, certain general assumptions of general method, the chief of which are (1) that the human being is educable; (2) that human development is in accordance with law; (3) that these laws form the basis of the science of education and a guide in the art of teaching; (4) that a knowledge of the conditions, processes, and laws of human development is indispensable in the education and training of teachers; (5) that self-realization along the higher ideals of physical, mental, social, and moral life is the true aim of education—and life.

The general outline of subject-matter is as follows:

I. *The aim of education and life.*—A progressive self-realization along the characteristic lines of human development; results measured at any time by degree of personal and social worth and efficiency. This conception is a gradual growth whose academic maturity is reached in the philosophy of education.

II. *What the child starts with.*—(1) Life appetites, impulses, and possibilities; (2) a body organism, through which consciousness is aroused and impressed, and which serves as the instrument of the various modes of activity and expression; (3) instincts and other latent ancestral inheritances that appear in their proper order and time; (4) environment, social and physical, in which he must find or make his place if he survives in accordance with the prevailing standards that test and measure life, and which largely calls forth and determines his individual type.

III. *Relation of the body organism to the child's whole development.*—(1) The nervous system, its function, physical basis of habit, memory, and specialization; (2) growth of bodily control in relation to mental development; from fundamental to accessory; (3) the law of fatigue and recreation; (4) the law of habit and accommodation; (5) temperament and individuality; (6) comparative and periodic physical growth in relation to mental development; (7) care of body; (8) proper physical conditions of schoolroom.

IV. *Stages of development.*—Infancy and early childhood; later childhood; youth, or adolescence. (1) Physical, mental, social, and moral characteristics of each stage; (2) subject-matter of the course of study, school organization and method of instruction as determined by the needs and capabilities of pupil in these several stages; (3) the "culture-epoch theory" examined—parallelism of individual and race development.

V. *The psychologic basis of the learning process: Intellectual.*—(1) Some universal conditions and factors in the learning process, such as attention, interest, apperception, curiosity, imitation, suggestion, the law of impression and expression. These are studied with regard to their nature and meaning in mental development and the work of teaching. (2) What the senses do; the necessity of sense-perception, and the extent to which the course of study and lesson plans should provide for it. (3) Memory and association of ideas; how to secure efficient memory. (4) Imagination; its meaning in education; necessity and modes of securing vivid, accurate images; how the course of study provides for the development of imagination from the child's world of fancy to the world of rational order. (5) Thinking—understanding relations; how general notions are acquired, showing movement from individual to general, and from general to individual, in acquisition of knowledge, including the meaning of com-

parison, generalization, and naming ; judgment as a universal mode of thinking relations ; reasoning, including the nature and use of the syllogism. The inductive-deductive, and the analytic-synthetic, thought-movements in learning. Lessons and lesson-planning to illustrate these.

The study of the intellectual activities of the learning process is accompanied by frequent problems for observation and report. This is to promote a sense of reality of the psychologic facts, definiteness of knowledge, familiarity with children as they are, and to arouse interest in children.

VI. *The lesson and observation.*—The last three weeks of this term are concentrated upon the study of what constitutes a lesson in terms of the learner's experience, the unit of subject-matter involved, and the teacher's work. This has the double advantage of securing a concrete review of the term's work and making the student somewhat familiar with actual schoolroom work and the organization of lessons; thus those who begin teaching the next term will be the better prepared for it. This study of the lesson consists mostly of observation of illustrative lessons, followed by discussion in the light of the standards derived from study of the psychologic basis and other features of the work in general method.

The above topics are covered by the first term's work. The second term continues the study of the conditions, processes, and laws of mental development as follows:

VII. *The psychologic basis of the learning process: Feeling.*—(1) The general function of feeling in development—it makes us aware of the value of an experience. (2) Feelings graded according to value and order of development; sensuous, egoistic emotions, altruistic emotions; the higher sentiments. (3) The egoistic emotions—mainly arising from the law of self-preservation; special study is made of the causes, significance, and mode of treatment of such feelings as love of activity, feeling of power, fear, self-respect. (4) The altruistic emotions—genesis of the social person; justice, good-will, respect and reverence, sympathy. (5) The higher sentiments—the intellectual, the æsthetic, and the ethical. (6) Propagation of right feelings; what can the course of study do? What can be done by right management and government? By sanitation and decoration?

VIII. *The psychologic basis of the learning process: Volitional.*—(1) Life appetites, impulses, instincts, native interests, the dynamic nature

of all ideas; spontaneous and deliberative action; ideas never reach their maximum of clearness and meaning until expressed. (2) Elements of a volition, a rational act; (a) knowledge—of the end or aim, of the means to the end; (b) feeling—that the end has value, belief in the attainability of the end, or consciousness of power; (c) the moving force or working energy that brings about the desired end. (3) Stages in the development of a volition; desire, choice, motive, realization of motive. (4) The system of desires and ends made up of all the particular desires and ends constitutes the goal and end of all education and life; this end is *self-realization*. (5) Stages or levels of self-realization; physical control, prudential control, moral control. (6) The psychology of character-building.

IX. Some application of the foregoing.—As in case of the first term, the second term's work includes problems for observation and report. Near the end of the term about two weeks are given to observation of class work in the training school. This is mostly a study of the learning activity as an act of volition. A definite plan is followed, the chief features of which are: (1) The feeling element in the act—interest, motive, feeling of value in the end, belief in attainability. (2) The intellectual element—aim or ideal in mind of actor, idea of means necessary to attain the end, attention, etc. (3) Was the act efficient or not? Explain in terms of what the teacher did or failed to do. (4) Estimate effects of lesson in terms of educational value.

X. A study of one pupil.—When practicable, a student-teacher who has had general method makes a long and many-sided study of one of his pupils. This reinforces and extends the work in general method, but it has a far greater value. It brings about a close personal acquaintance with, and knowledge of, his pupil, and makes for habits and interest in studying children, and for an understanding of just what sort of problem a pupil is. It also has an immediate value in instruction and government.

XI. An intensive study.—Each member of the class makes one *intensive study* of some aspect or problem of method or psychology, or reviews some excellent book on the subject.

XII. The class-room work in general method is followed up in the training school by the teacher, with the hope of keeping constantly informed as to the problems and difficulties the students meet, and to hold the student as much as possible to the standards set up in the class-room. In the discussion of critique lessons the teacher has an excellent chance to observe the results of his work and to follow it up.

THE PHILOSOPHY OF EDUCATION.

In this course is made a brief examination of different educational theories, and of the methods or systems based upon them. The end of education is found in complete living, an end which harmonizes the Greek ideal of individual perfection and the modern view that education should bring man into possession of his spiritual inheritance. Since education can only develop latent powers, a universal factor in all education is found in interest, the desire of self-expression or self-realization that is the conscious accompaniment of development. The field of education is surveyed in the light of this principle; the course of study examined, and rational method determined. The place of oral instruction and examinations, proper modes of questioning, the function of the problem in fixing attention and stimulating effort, become clear. Such empirical maxims as Herbert Spencer's six principles are explained and justified.

It is not claimed that this attempt to harmonize and unify educational theory is entirely adequate, nor that in practice it is a panacea for every ill. The deeper law gives significance to the educational principle, and guides the teacher.

SCHOOL ADMINISTRATION.

The same law of interest—that the desire of self-expression, of self-realization, is the fundamental element in all education—must determine the organization and management of schools. The insist-ent question always is: How does this arrangement or practice affect the direct interest of the child in the subjects of study? Among the topics discussed are: the qualities of the good superintendent and the services he should render; the duties of teachers in school and community, and the qualifications they demand; school programs, classification, and promotions; school architecture, sanitation, and decoration; the various school incentives and the sort of character they yield; modes of dealing with delinquent pupils; the incidental moral training afforded by the school in politeness, order, truthfulness, industry, justice, and rational self-control. Some time is given to a study of the public-school system of Illinois, and the legal rights and obligations of teachers.

Much of this course does not bear directly upon the class instruction in the training school; it enables the teacher better to realize his position in a great system, to feel his responsibilities, and especially to

see the social value of wise school discipline. The discussion of school sanitation and decoration, together with the somewhat extended course in school hygiene, leads to a lively appreciation of the conditions of the schoolroom, and to prompt action wherever the physical well-being of the children is endangered.

REPORTS OF SPECIAL DEPARTMENTS.

Each member of the faculty has prepared a statement of his work in its relation to the preparation of teachers, setting forth especially the relation of theory to practice in his department. Out of the seventeen reports from the teachers of special subjects in the normal department two have been selected as fairly typical.

THEORY AND PRACTICE IN THE DEPARTMENT OF LITERATURE.

It is the business of this department to prepare students to teach literature. This means that they must be helped to form a conception, first, of the essential nature of literature; secondly, of what, owing to this nature, is best fitted to contribute to the development of the individual; and, thirdly, of the way in which this possible contribution can best be made real.

To accomplish the first end, the teacher studies with her classes in one way or another as many pieces of literature as the time allowed in the course permits. To give acquaintance with as wide a range of literature as possible different types are chosen for this study: epic, lyric, and dramatic poetry, the novel, the essay, the speech. To make the acquaintance a lasting friendship—intimate, intelligent, sympathetic, a close study is made of a few pieces, such as *Sohrab and Rustum*, Wordsworth's best lyrics and the best of his short narrative poems, two books of *Paradise Lost*, *Silas Marner*, and two plays of Shakspere. The power gained in this detailed study is used in more rapid study of books outside of class—novels, essays, plays, speeches—followed by critical class discussion. In classes made up of the best-prepared students less time is allowed, the number of pieces studied is cut down, and the study follows somewhat different methods.

The second and third ends also must be reached in the several classes by different methods, determined by the previous preparation of students and by the time granted. In longer courses these ends are both sought in the actual study of literature. What literature can supply to the education of the individual is seen more and more clearly

as the real nature of literature becomes clear. Effort is constantly made to distinguish between the essential and the non-essential—between the study of literature and the encyclopædic study of things mentioned in literature, on the one hand, and the study of literature itself as an artistic embodiment of human life, on the other. Effort is made to place these things in a true perspective, and by so doing to help the student begin his work as teacher with a clear sense of their relative value.

In furtherance of the third end—to give a clearer conception of intelligent method in teaching literature—the attention of the students is called to the method actually employed in handling different types of literature with them; reasons for its use are sought in the nature of the literature and the character, ability, and needs of the class; and modifications of it are considered that would be made necessary by changes in the age, character, and needs of pupils in the various grades. In short, a constant effort is made to make the students of the class intelligent critics and students of method.

In the shorter course most of the academic work, while greatly needed, has to be dispensed with, and the time of the class given to a more exclusively professional study. Even here aims and methods are studied through a study of literature itself, but the work is more rapid and involves many more written discussions of poems, chapters, and plays, with direct reference to the preparation of the teacher.

So far as the exigencies of the working program permit, the department follows the student-teacher in his work in the training school. The special material to be used is discussed, the special needs of the class are considered, and the best means of handling the given material to supply these needs. Sometimes this assistance is given through direct conference with the student-teacher, sometimes through conference with the critic. Where the program most permits such supervision and co-operation, the results have been the most satisfactory. The actual test of the work in the training department keeps a check upon the theory of the literature department, and enables that department to form a more just conception of the possibilities and limitations of work in the grades. The student-teachers who have had the work in the department are in the main found to be making intelligent effort to make their work vital in the lives of their pupils. Failures of course occur, some of them due to the necessarily inadequate preparation which we can give in one very limited course,

together with the lack of general reading ; others of them due to general unfitness of the student-teacher, owing to lack of native ability or to immaturity and lack of life-experience.

THEORY AND PRACTICE IN THE DEPARTMENT OF GEOGRAPHY.

I. *In the courses in the normal school.*—The aim : The student gains in the department of pedagogy a knowledge of intellectual processes, and of the child's mental and spiritual development. He must acquire in this department a knowledge of geography as a science, the habit of detecting principles of geographic control beneath masses of miscellaneous facts, and an understanding of the mental processes involved in acquiring this kind of knowledge. In other words, he must learn the content of geography, its peculiar point of view, and its value as an information and as a disciplinary study. He should also learn to regard the geography course in the grades as a continuous whole, each term's work being based on that of the term before and preparing the way for that of the term following, to see the changing point of attack as the interests of the pupils change, and to understand the increasing complexity of problems as the work advances. He should, furthermore, become familiar with as many geographical aids as possible.

Class instruction : The average student comes to us with statistical knowledge of geography only, and very little of that. Therefore the heart of the courses must be made geography itself, and not something about geography. The topics taught are so selected that by the end of his course the student has studied all the larger classes of geographic facts and principles, and has in several instances touched on some of minor importance, but of no less interest. Through his own study he becomes familiar with the use of maps, pictures, models, diagrams, and other aids. The more purely professional method of teaching nowhere receives formal treatment, but every phase of this subject, as mentioned above, is planned for and brought up in connection with the several concrete studies which best illustrate the method in process of execution.

The result seems to leave the student with the idea of doing more exhaustive work in the grades than is desirable. This difficulty may be met in some measure by careful study of the interests of children.

II. *In the training school.*—The practice : Criticism, in so far as is possible, should be constructive rather than destructive. Faults may

become accentuated by too much watching. The head of the department should endeavor to see that the spirit of the work is that of real geography; that the work of successive terms is unified; that the important details are chosen to make clear the important principles; that the presentation is effective; that the work progresses and hangs together; in other words, that geography is taught in a way adapted to children. The technique, strictly speaking, does not belong to the department's sphere of influence.

Student-teachers generally lack originality and independence in use of devices and in planning. To meet this it is best never to suggest just one device or one plan of approaching a subject, but, by suggesting briefly several, to force the students to choose and to work out their own details.

They choose details because they "have found them" somewhere. In such a case the criticism usually is a question in regard to the choice of details in the lesson seen, followed by one in regard to details to be chosen for the next topic to be taught. The effort is thus to keep the student from repeating an error, and also to make concrete the general criticism.

These difficulties in the student are met with :

1. Lack of interest in his subject-matter.
2. Attention to the "externals" of his work rather than the heart of it.
3. Tendency to do high-school work in the grades.
4. Tendency to teach geography rather than teach children.
5. Tendency to give scraps rather than wholes in the work.

Some of these troubles may be due to the fact that the student gets many criticisms based upon scraps of his work. The critic should plan to visit the same class for a week in succession. Perhaps also the student gets too much criticism and thereby loses his independence. The first and second difficulties point back to deficiencies in his work in the normal school. Perhaps the second is also in part due to the undue amount of emphasis put on irrelevant details by his critics.

THE TRAINING SCHOOL.

The training school, as one of the departments of the normal school, has a function in the equipment of the student with usable theory. It is its province to provide observation material, illustrative of work in theory, and also to provide opportunity for the student to

grow in knowledge and appreciation of the purposes of education, of the subjects of study used as instruments of education, of the nature and laws of mental processes, and of the science and art of education. It is at the same time the province of the department to give opportunity for the direct acquaintance with schoolroom problems that shall make possible the growth of the student in tact, in judgment, in sympathetic understanding of children, in sense of the teacher's responsibility, and in all other personal qualities that make for success in teaching.

As to the direct connection of the pupil-teacher with the training school in what is called practice teaching, there are four lines of work :

1. Planning of lessons in series by teacher.
2. Execution of lessons and management of classes by teacher.
3. Observation and discussion of lessons given by critics.
4. Conference with critics, including :
 - a) Weekly teachers' meetings.
 - b) Discussion of the teacher's plans.
 - c) Criticism of his lessons.

It is expected to make the three terms' practice work so contribute to the growth of the student that he shall leave the institution possessed of the knowledge, the analytic power, the tact, and the initiative that shall insure at least a reasonable degree of success and the habit of growth that means progress. When he enters upon his training-school work he is required to take daily charge of a class for a term, to instruct and train that class by using as exercise ground a specified portion of a course of study, to take advantage of the opportunity thus afforded for extension of his pedagogical knowledge, and gradually to show under criticism the power to recognize and correct his faults as a teacher.

What shall we expect from his preceding work as preparation for the new duties and opportunities? He must have a fair knowledge of the subject to be taught in itself and in its values. He cannot in three terms acquire more than a fair degree of skill in meeting the problems of the schoolroom, even if he knows his subject-matter quite well already. As said before, he will not have had all the topics in a subject which the training-school course requires him to teach. It must be assumed, then, that when the practice teacher has to present a topic not studied in the normal class he will be able to attack the problem of mastering this field and organizing it for presentation, by

processes which are familiar; that he will be able to prepare the unfamiliar matter and at the same time adapt it to a class. Thus, while the student who has had a branch of study in a normal school will often not have adequate knowledge of the exact topics he is to teach, the practice department will assume in lieu of adequate knowledge the power of acquiring the needed information. In studying reading or biology the normal student regards it as a prospective instrument of education. He learns what it is good for in training a child's mind and the nature of the appeal it is fitted to make to the child; its organizing idea, its logical order of topics, and its relation to the child-mind; that is, he learns the main features of method in that study. Now, just as the training department assumes the necessity of the student's learning more facts of subject-matter while he is teaching, so, too, it assumes that the details of the process of adapting the subject to a class are yet to be learned. The critic-teacher should be able to count on a fair quantity and quality of knowledge of the subject to be taught, a fair degree of power to acquire and organize new matter, and a fair insight into the educational values and pedagogical principles of the subject-matter.

Again, in the general method and psychology the student will have made some direct study of the general problems of teaching; will have learned what a lesson is; will have learned the laws of interest, attention, and other mental processes; and will have acquired some facility in seeing what must be done to make a mind work in a certain way. He will not have acquired skill in plan-making in any one line of work, because it will not have been possible to give continued practice in plan-making. The general professional work, while always dealing with concrete cases, must in the nature of things draw first from one field, then from another; but it must give the idea of the teaching problem, the idea of the plan, the idea of the control of one mind by another, with, of course, some detailed knowledge of the schoolroom situation, incidentally acquired.

Before beginning his planning of specific lessons the critic talks over with the pupil-teacher the line of work to be done in his class for the entire term, helping him to see its main lines of organization and its main values to the child. Then the pupil-teacher takes a unit of the subject-matter and writes in detail a plan for the presentation of this unit. In this plan he states:

1. The topics to be presented.
2. The lesson movement.
 - a) Mental.
 - b) External.
3. What he expects this lesson to do toward the development of the child. This plan is handed to the critic, who carefully considers it and suggests changes, if necessary. When, according to the critic's idea, the plan is worth using, the pupil-teacher employs it in the execution of a lesson. Plans are handed in long enough in advance of the time he is expected to use them to make possible revision and discussion before the lesson itself is taught. Plan-making under criticism is continued throughout the three terms of practice work.

From the plan-making the following benefits accrue to the pupil-teacher:

1. He gets a more minute knowledge of the subject-matter.
2. He attains facility in the organization of the subject-matter.
3. He becomes increasingly skilful in translating subject-matter into terms of a learner's processes. This means application and extension of the knowledge of psychology, general method, and the method of the particular subject he is teaching. It involves also minute study of the particular class. In the theory work previously done he has made plans and considered situations, but not with a specific set of pupils in mind. His planning has, therefore, been largely abstract. He now comes to see subject-matter really as a mere instrument of education and to see the child as the thing to be taught and the chief factor in determining the direction of his plans. In discussing plans with the student the critic tries to make the student's consciousness of his class strong and potent.
4. He forms the habit of careful preparation.
5. Through the natural interests that the solution of a problem inspires and through the knowledge he gets from the plan-making, he comes into a state of mind in which the execution of the plan promises pleasure, and which goes a long way toward securing success in execution. At the same time, however, he must be careful to be so familiar with his plans that he will not have to stop and think what he had meant to do next; and, moreover, he must have so considered the possible emergencies of the lesson that the changing of his plan can be readily done.

When a plan has been accepted, the pupil-teacher sets about its execution. He will find many points at which a pupil's answer will not permit the movement he has meant to make. He has been encouraged in planning to consider all the possible answers which, from his knowledge of the class and of conditions, he thinks the class may make. He is to learn to see in every answer an indication of the state of mind of the child, a sign-post showing how much has been accomplished and the direction which the teacher must now take. While the student-teacher and his class work, the critic is making note of the questions, answers, etc. When he is through with the lesson the teacher will come to the critic to talk the lesson over with her. She tries to help him to an intelligent understanding of his lesson in its relation to his plan. He has intended to get certain results in the children in knowledge and training. Did he accomplish these results? In either event, why? The critic will call attention to the particular question or questions on which the success of a lesson hinged; will show how at one point or another the teacher failed to read accurately the revelation made by some answer as to what was going on in the child's mind; will help the teacher to see what he should have done in such case. Any emergency of either instruction or discipline, and its handling, will be considered as to the principles involved. The pupil-teacher will be asked to account for any lapse of attention or interest and to see therein the hint for himself. Such questions will be asked as these: Was the attention of the pupils held by the subject-matter itself? Are the children forming the habit of attention? What other means could have been taken to cause the child to get a particular idea? In what state of mind did the children leave the lesson at the close of the hour? So far as opportunity offers, the teacher will be caused to draw consciously on the professional work of the earlier terms of the course. In this way the practice work will contribute to the fixing and the extension of preceding work and to giving it concreteness in the student's mind.

The weekly teachers' meeting serves to clear up and to broaden the student-teacher's view of his work. In these meetings there are several lines of discussion:

1. Of course of study for the grade and for related grades. An intelligent view of the course is necessary to the student's success with his little class. He needs help in correlating his work with that of others.

2. Of general class management, adjustment of schoolroom conditions, management of individual cases which for mental or physical causes may require special attention. At this point again the previous work in pedagogy and psychology is laid under tribute.

3. Of purposes and values of subject-matter as means of spiritual growth. Day by day the teacher is adapting the course to his class. In discussion of the values of the various lines, in teachers' meetings, he comes to a fuller knowledge and sounder estimate of the powers and limitations of his class and of the various subjects as well. The discussions are intended, also, to stimulate the teacher to greater interest in his problem through the expounding of the problem and through the identifying of himself with others in its solution. Heads of departments sometimes meet with the pupil-teachers working in their lines in the training school to discuss with them the organization of the subject, the natural presentation of it, helpful books and other means, and the good and the bad points of the teaching observed by the head while exercising the duty of associate supervision. Critics and pupil-teachers alike profit by this. It illuminates the course in the subject and its method.

Aside from the student's regular daily practice, he is required to carry on a line of observation and discussion in attendance upon critiques. The critique lessons here are regularly given by critic-teachers or heads of departments, with the other critic-teachers, heads of other interested departments, and the pupil-teachers, present. After the lesson, on another day, the supervisor of practice conducts a discussion of the lesson—its matter, its organization, its execution, its educational values. The student-teachers are asked to account for points in the procedure, to justify or to amend the plan; the critic who gave the lesson helps to intelligent discussion of it by stating its place in the series of lessons, the preparation made by the children, and other points. The student-teacher has an opportunity to ask questions about the mode of procedure. All persons present assist in the discussion. Through the critiques, as thus constituted, the training department accomplishes certain results in both the pupil-teacher and the general theoretical work. The function of the critique seems to fall under the following points. First, it provides a basis for discussion of the practical workings of the method taught in the various departments. Second, it gives opportunity for such discussion of the course of study as will lead to its thorough understanding by critics and heads of departments.

The critique enables the critics to see lines of work in other rooms by other critics. Not only will their clearer knowledge of the course be an advantage as regards their execution of their particular divisions of it, but a general harmony of movement will thus be facilitated, to the manifest advantage of the whole training school when we reckon it as a force intended to affect the student-teacher. Third, through the discussions arises the opportunity for unification of modes of criticism. The handling of the lesson by supervisor, heads of departments, and critics establishes a common point of view and perspective for criticism. Those salient features of a good lesson, the thought of which must make an atmosphere for the student-teacher in the daily teaching, and for the critic in her observation of that daily teaching, are brought again and again before the mind until they establish themselves as a sort of working model. The establishment of common ground in criticism is important. It unifies the critic force so that they count for more in the reduction of current faults among the groups of student-teachers. Thus at any point in the training school help and correction will be as systematic and scientific as at any other point. Fourth, the heads of other departments have associate oversight of practice work in their lines. Their attendance at such critiques as concern their work will facilitate their advising with critic-teachers about the presentation of these subjects, and so will assist in making the desired harmony between the theory of the normal class-room and the practice of the training school. Fifth, through the points thus far mentioned the student-teacher is subject to such advantage as comes from more efficient work on the part of critics, supervisors, and heads of other departments. However, he achieves directly some notable benefits from the critiques :

1. He sees and discusses model lessons. His own teaching, with its inevitable faults, obscures the ideal he may have brought to his work from his preceding study. It is important that this ideal be brought into clear relief, until he shall have acquired power to keep it before him. Further, the skilful handling of emergencies by the critic, and the analysis of this in the discussion, will be full of suggestion to the student-teacher, who will carry back to his class increased knowledge of the art of teaching, and encouragement born of that knowledge.

2. The student-teacher is through the critiques enabled to see his subject in the course in other grades. The skilful fulfilling of his immediate responsibility rests on his knowing what has to be done in

that study from grade to grade. The topics in their sequence he studied more or less fully before he entered on his practice work, and something of how to teach them. Now day by day he sees in his class the minute development of a term's work, and in the critiques he sees how the topics of one grade fit into the work of another. His work assumes a larger responsibility, seen in relation to the work in other grades. He also learns the difference in the powers and habits of mind in children of different grades, and becomes a closer and more skilful student of his own.

3. He will observe in the critiques other lines of work in the grade in which he teaches. Often he does not make his work contribute as it ought to the development of the children, because he does not know what they are doing at other times in the day. The regular teacher of a school makes his work a unit; the student-teacher sees and is responsible for only a fraction. Force and time are thus lost to the children. This loss, inevitable in a training school, can only partly be made up by the critic, and can partly be lessened if the pupil-teacher familiarizes himself with what goes on in other classes. The critiques and teachers' meetings help him to do this.

4. The student-teacher gets something of the significance of a course of study in watching illustrative lessons through the course that he cannot get in any other way. He sees the difference in extent and character of apperceptive material from grade to grade, and the different modes of treatment thereby made necessary; the contribution of each subject to the child's development; the interrelations of the several subjects. He ought to know an ideal course of study longitudinally and in cross-sections; and to such knowledge the critiques pave the way, thus co-operating with all other lines of practice work.

The part of the supervisor of practice in these critiques is that of director and observer. He must, from his knowledge of the needs of the pupil-teachers, designate the order of the illustrative lessons. He is responsible for the organization of the critiques into a body of lessons that shall effectively supplement the method work and the practice work in training the student-teacher. He must plan the lessons and conduct the discussions with his finger on the pulse of the student-teacher—must diagnose the need and provide material that shall meet it. He may make the critique one of the most helpful of the agencies by which the student-teacher acquires a working knowledge of the art of teaching.

LIMITATIONS.

In carrying out the plan of work outlined and discussed in the preceding pages we have met with many difficulties that have not yet been entirely removed:

1. The preparation of pupil-teachers at the time of entering upon the practice work is often inadequate either in scholarship and power in the subject, or quantity and quality of pedagogical knowledge. Inasmuch as the student-teachers are expected to devote only about one-fourth of their time to the preparation and teaching of their practice-school lessons, it frequently happens that a student cannot acquire the necessary subject-matter and organize it for presentation within the time at his command. The other deficiency is often due to a failure on the part of the student to realize the essential unity and purpose of his course as he takes the various subjects, or to hold himself responsible for retaining for future use the matter acquired in any one term. Full knowledge of what goes on in the training school would enable heads of departments to use that school more frequently for reference or for actual illustration. If this be done in each subject, the student is more likely to think of each new item of knowledge in relation to actual teaching, and the various items will then stand a better chance of living on in the thread of connection between theory and practice.

2. Insufficient provision has been made for conferences between the various normal instructors and the critics in the various grades. Each should see the other at work, and know his plans and purposes, and have time to discuss the theories of both departments and their realization in practice. To establish unity of the entire normal school, professional faculty meetings are held fortnightly. In these meetings the various heads of departments state, with as much fulness as time will permit, the purpose and plan of their work. Where each of the normal faculty has had a more or less extended experience in public-school work, there is not wanting a general interest in these papers and discussions. Through them all the teachers gain, in a much better way than mere class visitation will permit, some notion of what their colleagues are attempting.

3. It is believed that the work in practice should be graded so that the three terms' teaching should provide progression in difficulty of problems, and consequently a natural and continuous growth on the part of the student-teacher. It has been found impossible to provide

this in every case, partly because of the irregularity of student programs and of the requirements of the practice-school program as ordered with reference to the convenience of the heads of normal departments; partly because of the different fields of work in the public schools for which the students are making preparation.

4. There exists the difficulty, found in every practice school, of properly co-ordinating the various studies pursued by any child. An attempt is now made to solve this problem by providing that critics shall have continuous charge of their pupils for a considerable portion of each day. When the critic can do a large part of the teaching herself, she can secure in the children a unity of feeling and a community of experience which will make them more like an ordinary school for pupil-teachers to work in. She can also make up for deficiencies in the training given by the student-teachers. Such an arrangement enables critics to make trial of method as planned in connection with the head of the department, and thus provide the way for advancement in the theory work in the normal school.

5. Some inertia is encountered in the matter of having classes in the training school and illustrative lessons taught by regular normal-school instructors. Long experience in the teaching of adults tends to unfit one for handling children.

6. It is not always practicable to assign student-teachers to the classes for which they are best adapted and to provide for all the classes student-teachers who have completed all the theory work in that branch in the normal department. This difficulty is inevitable unless a portion of the practice-teaching be deferred until the completion of the normal course.

CONCLUSION.

From the foregoing report it is evident that, while the close relation established between the two faculties of theory and practice have enabled this school to render its training department more efficient, the problem is not completely solved. If a single teacher of encyclopaedic culture and the highest pedagogic skill could give a small group of students all their instruction in theory, and in person supervise all their teaching, there might be attained the desired unity between theory and practice. To bring the work of thirty people working in separate fields into harmony, or rather into the unity and singleness of purpose essential to the work of an institution, is no easy matter. Yet

the problem must be resolutely attacked. Mere eclecticism will not answer. Any such course of action is likely to beget the feeling that one way is as good as another. There certainly has been worked out through the experience of the centuries some body of pedagogical doctrine to which all well-informed students of education will assent. The normal student should come into his professional inheritance unembarrassed by clouds upon the title.

THE RELATION OF THEORY TO PRACTICE IN THE TRAINING OF TEACHERS.

By L. SEELEY,
State Normal School, Trenton, N. J.

IN discussing this subject it seems to me that we should first agree upon a definition of terms. John Locke says that most of the quarrels that men engage in would never take place if they would stop to ask each other what they mean.

THEORY.

What do we mean by "theory"? There are two views of theory which may be taken, as follows:

1. That which involves a knowledge of the professional subjects necessary to the teacher. These subjects are:

a) *History of education*, which describes the educational movements of the past; sets forth the lives and teachings of great thinkers who have written educational works or who have been great teachers; outlines the systems and theories of education that have been promulgated; traces the advance of civilization through educational means; gives warning as to the errors of the past; and suggests new fields for future improvement and investigation.

b) *Method*, which treats of the natural, orderly, and systematic manner of presenting the subject-matter to the mind; or, as Kant puts it, "Method is procedure according to principles." A knowledge of method is essential to the theoretical preparation of the teacher.

c) *School management*, which considers school discipline, good order, proper habits, correct morals, relation of the school to the community, as well as other matters connected with the internal affairs of the school, such as promotion, classification of the school, the daily schedule of work, school incentives, etc.

d) A knowledge of the *subject-matter*, not only from the culture standpoint, but also concerning its value for the purpose of intellectual discipline. This must embrace a far broader range of material than the specific subjects that one is called upon to teach. The teacher must possess a reserve of knowledge upon which he can draw in case of need.

e) *A knowledge of man.* This enables the teacher to care for the physical being; it makes him acquainted with the intellectual activities and the laws that govern these activities, that is, with *psychology*; it includes a knowledge of man's moral and religious nature.

f) *Philosophy of education*, which determines the nature, defines the limits, and states the aim of education.

These subjects set forth the general idea of the theory of education upon which there is an agreement among educators, though they may differ as to details. As there is this general agreement, a discussion of this phase of theory would hardly be profitable. I shall therefore present another view for consideration at this time.

2. This other view of theory is as follows: It contemplates the definite knowledge of each subject of the curriculum, which the pupil-teacher must know before he is ready for practice. It embraces also a knowledge of the order of arrangement of material, of essentials and non-essentials, of the method and order of presentation, of the science and art of teaching. We believe at Trenton that the young pupil-teacher must be grounded in theory in this latter sense before he can successfully practice. Therefore, ten years ago the faculty of the normal school prepared a syllabus of work for all of the subjects of the course of study and for all classes, under the title, "Studies in Plan." This appeared in the *Annual Report* of the school for the year 1893, and awakened widespread interest among educators in many parts of the world. In 1901 this work was revised and presented to the New Jersey Council of Education as Document No. 21, with the title, "A Suggestive Course of Study for Primary, Grammar, and High School Grades."¹

This document, as its title suggests, attempts to furnish an outline of the material that should be presented in the grades included. In so far as it has succeeded in doing this, it presents a theory upon which the pupil-teachers can base their practice. With such an outline in mind, they have a definite plan by which to present any given subject that they may be called upon to teach. The student has a theory which it is his duty to put into practice. He is thus not left in doubt as to what he is to do. A great deal has been gained when the pupil-teacher is well grounded in theory. Without this the highest success in practice cannot be hoped for.

¹ Document No. 21 may be had at the Normal School, Trenton, N. J., at a cost of 30 cents.

All of the work involved in the general idea of theory as presented at the outset of this paper cannot be completed before the practice must begin. The subjects enumerated are carried up to the end of the course, while the practice-work must begin a year or a year and a half earlier. But theory according to this second view may be obtained in time to be employed from the beginning of the practice work.

I shall therefore present for your consideration the outline of work in geography as a type of the theoretical work to be mastered by our student and taught in his practice-work in that subject. As I have already remarked, the document in question, from which this work is taken, includes all of the subjects of the curriculum from the beginning of the primary to the end of the high school grades. This work will furnish a definite and specific subject for discussion and criticism by the Society. Is the work in geography as presented sound in theory and suitable as the basis of preparation for practice-work by the pupil-teacher in that subject? We believe that it is, and therefore present the subject as follows:

GEOGRAPHY.¹

The special province of the science of Geography is to deal with the *relations* existing between physical conditions and political facts. Diversity of surface and climate controls the distribution of plants, animals, and minerals, aids in the development of industries, fixes the location of cities, and facilitates or hinders commerce. Therefore the aim in this course of study is to give due recognition to the natural forces and conditions by which human activity and progress are shaped. The leading ideas are that the civilization of the people in any region gives expression to the combined influence of all the surrounding physical conditions upon the life of those people; and that diversity in feature, form, and character of the earth's surface, in any region, gives expression to the combined influence of all the destructive and constructive forces in nature.

A. Preparation for map-reading.

I. Position.

1. Practice in describing the relative position of familiar objects.
2. Sketch maps of rooms or walls that are not before the eye at the time when the work is done.

II. Direction.

I. Personal.

- a) Right—left.
- b) Up—down.

¹This course was prepared by MISS SUSAN A. REILLY, instructor in geography, State Normal School, Trenton, N. J.

2. Cardinal.

- a) North—south.
- b) East—west.
- c) Midday line or local meridian.
- d) Horizon—cardinal points.
- e) Compass.

III. Distance.

- 1. Idea of scale.
- 2. Idea of *time* as a unit of measure in estimating distances.
- 3. Practice in scale-drawing until the child can show the general space relations of all the ground he personally knows.

B. Field and laboratory work.

This work is intended both to anticipate and supplement class work. The aim in the actual field work is, first, to train the students "to see when they look and know when they see;" and, second, to store their minds with memories of real things, conditions, and relations. To secure this, observation is directed by definite questions, and written reports of the results of the observations are required, especially when the work is not personally conducted by the teacher.

By studying the relations that exist between the running water, wind, air, frost, and the surface of the earth, the students are gradually led to appreciate the fact that every natural form has attained its present shape by continual action in the past of the same agencies which today are producing changes upon its surface. It is not to be expected that all the various geographical forms and processes will be found in any single neighborhood. The objects of study must vary; the student being necessarily limited in his field work to what the neighborhood and the season of the year offer.

I. Outdoor work. School grounds.

- 1. Basis for teaching cardinal directions.
 - a) Path of sun.
 - b) Position of the sun in the morning, at noon, and in the evening.
 - c) Change in the direction and length of shadow during the day.
 - d) Shortest shadow.
- 2. Physical features.
 - a) Drainage systems during a storm.
 - (1) The growth of the drainage area of a master-stream, shifting of divides, increase in number of tributaries, and effect of stream-action upon the road.
 - (2) Formation and disappearance of puddles.

b) Forms of water on the earth.

- (1) Dew.
When and where formed.
Effect of the sun.
 - (2) Snow.
Shapes of the flakes.
Effect of wind.
Effect of melting upon the ground and the creek.
 - (3) Ice.
When and where formed.
Effect upon the water.
Thickness. Uses.
 - (4) Frost.
When and where formed.
Quantity.
Effect of sun.
3. Soil.
- a) Effect of running water.
 - b) Effect of rainfall.
 - c) Effect of frost.
 - d) Effect of fallen leaves.

II. Weather.

I. Winds.

- a) Direction.
- b) Force.

2. *Forms of water in the air.*

- a) Clouds and fogs.
 - (1) Shapes and motion of clouds.
 - (2) Height, quantity, and kind of clouds at different times of the day.
 - (3) Difference between fog and cloud.
- b) Vapor.

C. People.

I. Interest the children in the human life around them.

II. Stories of the people of other lands.

A. Prepare for map-reading.

I. Position.

- 1. Study of a well-made map of a region which the children have explored.
- 2. Maps of sections which the students have traversed, made from memory, using colors and conventionalized symbols.

II. Direction.

1. Sketch maps are referred to the points of the compass.
2. Study of the city map.
3. How to find one's bearings in a strange town.

III. Distance.

1. Conception of *height* as a space element, beginning with the height of familiar objects, such as school building and trees.
2. The *height* of hills and the relation of *height* to horizontal extent.

B. Field and laboratory work.**I. Outdoor work. Excursions to the country near the school.**

1. Applications of cardinal directions.
2. Physical features.
 - a) Recognition of the real surface features—marsh, hill, plain, meadow, gravel-bank, boulder, lake, creek, river.
 - b) Shape and structure of the land forms.
 - c) Relation of each form to the surrounding country, and to the waste and water streams.
 - d) Influence upon the occupations of the people.
 - e) Characteristic features of river, creek, lake. Extent of flood plain, undermining of banks, deepening or widening of channel, transportation of silt, building of bars and spits, falls and rapids, limits of the stream valley, character of the shore and bed.
 - f) Relation of the water-power to the industries of the city.
 - g) Formation and development of a gully on a bluff or embankment.
3. Soil—quarry or railroad cut.
 - a) Kinds—clay, sand, gravel.
 - b) Colors at the surface—changes in color and coarseness with increasing depth.
 - c) Composition and depth.
 - d) Relation to the rock-bed and to the vegetation.
 - e) Relation of the roots of the trees to the rock-bed; of the sod to the surface soil.

II. Weather.

1. Reading the thermometer and keeping records of temperature, direction of wind, forms of clouds and storms.
2. Daily and monthly *range* in temperature.
3. Relation of clouds to temperature, rainfall, frost, and dew.
4. Prediction of the weather from cloud and wind.

III. Excursions in the city.

1. Pottery, stone-yard, brick-yard, etc., noticing the stages and processes in the preparation of material for the use of man.
2. Store or market as a distributing center connecting us with the outside world.
3. Railroad and freight stations, noticing coal, freight, and oil cars, their contents and destination.
4. State house. Historical monuments.
5. Materials used in public and private buildings, roads, bridges, and pavements.
6. Distribution of the population with reference to the business centers.
7. Relation of the city to the surrounding country.

IV. Class-room work.

1. Tracing on the city map the routes of the excursions.
2. Study of typical pictures of the regions visited and of similar and contrasting regions.
3. Studying a sand map of the home region.
4. Studying representations in sand of type surface features that are not found in the neighborhood.
5. Molding features from pictures and from memory.

C. People. In the city.

- I. General occupations.
- II. Leading industries. The dependence of the occupations upon the surrounding physical conditions.
- III. Interdependence of all classes.

A. The earth as whole.

- I. Form and size.
- II. Conception of the earth in space.
- III. Distribution of land and water.
 1. Land and water, eastern and western, northern and southern hemispheres.
 2. Continents and oceans.
- IV. Motions.
 - I. Rotation.
 - a) Day and night.
 - b) Directions on the globe.
 - c) Parallels and meridians.

2. Revolution.

- a) Plane of orbit.
- b) Inclination of axis.
- c) Direction of axis.

V. Zones.**1. How the earth is heated.****2. How the boundaries of the zones are fixed.****3. Characteristics of each zone.**

- a) Variation in the length of day and the angle of sunshine in the different zones.
- b) Temperature.
- c) Rainfall.
- d) Life.

VI. Atmosphere.**1. How the air is heated.**

- a) Effect of mountains.
- b) Effect of clouds.

2. Winds.

- a) Why winds blow.
- b) General circulation.

3. Evaporation and condensation.**B. Field and laboratory work.****I. Outdoor work.****1. Basis for teaching the zones.**

- a) The morning and evening temperatures are associated with the *low* position of the sun and the midday temperature with the *high* position of the sun.
- b) The north and the south movement of the sun at noon is observed, and school records are kept, so that the student can find the *dates* of the highest and the lowest position of the sun.
- c) The winter *cold* is referred to the *low* path of the sun and the *short* day; the summer *heat* to the *high* path of the sun and the *long* day.
- d) Seasonal changes in temperature, plants, animals, rainfall, soil, and clouds are observed and recorded.

2. Physical features.

Continue the work already indicated.

3. Soil.**a) Formation of soil.**

- (i) Quiet work of the air.

- (2) Work of mosses and lichens.
 - (3) Work of animals.
 - (4) Work of growing things.
 - (5) Work of underground streams.
- b) Waste of the soil.
 - (1) Effect of surface run-off.
 - (2) Effect of plowing.
 - (3) Effect of forest-clearing.
 - c) Fertility of the soil.

II. Weather.

Continue the records, comparing the weather elements and making simple generalizations which will be useful in later years in the study of winds and climate.

III. Excursions in the city.

Continue the work indicated.

IV. Class-room work.

1. Construction of contour maps from carefully prepared models on the sand table.
2. Sketching cross-sections of sand maps.
3. Identification of the prominent features of the neighborhood on the local contour map, reading the height, shape, slope, and relative position.
4. Work with globe, showing—
 - a) Day and night.
 - b) Relative position of the earth and sun at the equinoxes and solstices. Descriptions.
5. Experiments to show why winds blow.
6. Experiments in evaporation and condensation, as a help in understanding the influence of winds upon climate and of mountains upon the character of the wind.
7. Study of pictures—written descriptions.
8. Finding the latitude and longitude of many places.

C. People. Races.

Very general and elementary work considering the leading characteristics and distribution of the races.

A thorough treatment of this topic is impossible until the physical environment of each race is known and understood. Special study of the people should, therefore, follow the study of the physical conditions of each continent.

A. Continental work.

All the continents are first studied in an elementary way, emphasizing only the general physical and political features, so that students can more easily trace the chain of relations connecting man with his physical environment. The order of study is North America, Europe, Asia, South America, Africa, and Australia.

The second treatment of the continents considers the origin, structure, and development of each, giving special attention to the geological development of North America, United States, and New Jersey, and to the geographical details of the great commercial countries of the world.

- I. Outline for the study of the continent of North America, regarding it as a whole.
 1. Position, relative and absolute.
 2. Size, comparison with.
 - a) Australia as a unit.
 - b) Other continents.
 3. Coast line.
 - a) Features.
Hudson Bay.
Gulf of Mexico; etc.
b) Continental shelf.
 4. Surface.
 - a) Position, extent, height, arrangement, and character of the Primary and Secondary highlands, including plateaus and principal mountain ranges.
 - b) Influences of highlands on the continental slopes; the position, volume, and work of rivers; the character of winds; the temperature of air; the occupations of people; and the irregularity and character of coast line.
 - c) Position, extent, and structure of the lowlands. Coastal plains, uplands, lake plains, flood plains, and deltas.
 - d) Influence of the lowlands upon industries, drainage, and character of shore line.
 5. Drainage.
 - a) Rivers.
Mississippi, Ohio, and Missouri, etc.
 - b) Relation of rivers to land forms, land waste, distribution of soil, commercial intercourse, and development of industries.
 - c) Lakes.
 - (1) Great Lakes, considering their effect upon the St. Lawrence and the climate of surrounding regions.

- (2) Great Salt Lake, considering its relation to the climate and the surrounding country.
6. Soil.
 - a) Relation to the structure of the underlying rocks and to the glacial accident.
 - b) Effect of plowing, cutting of trees, and cultivation.
 7. Climate.
 - a) The temperature and rainfall as controlled by position, surface, winds, indentations of coast, and ocean currents.
 - b) Influence of climate and soil upon the fertility of a region.
 8. Productions.
 - a) Distribution of the characteristic plants, animals, and minerals as determined by the nature of the surface, soil, and climate.
 - b) Division of labor resulting from this distribution and the consequent necessity for intercourse between the different sections.
 - c) Special consideration of some of the staple products and typical industries—cotton for the southern states or mining for the middle Atlantic, etc.
 9. Commerce.
 - a) Natural conditions promoting commercial intercourse.
 - (1) Absence of surface barriers.
 - (2) Great river systems.
 - (3) Extensive coast line and good harbors.
 - (4) Simplicity of structure, making it possible to connect the different river routes by canals and the commercial centers by railroads.
 - b) Commodities.
 - Natural.
 - Manufactured.
 - c) Commercial routes.
 - (1) Cities.
New York, Boston, Chicago, New Orleans, St. Louis, San Francisco, Baltimore, Buffalo, Philadelphia, Montreal, Washington, Quebec.
 - (2) Influence of surrounding physical conditions upon the location, growth, commercial importance, exports and imports of each city.
 10. Influence of the geographic conditions upon the settlement and development of the continent.
 11. Political divisions.
 12. People.

- II. Europe.
- III. Asia.
- IV. South America.
- V. Africa.
- VI. Australia.

B. Field and Laboratory work.

- I. Outdoor work — school grounds.
 - 1. Finding the local meridian and the *time* of shortest shadow.
 - 2. Difference between the solar time and standard time at Trenton.
 - 3. Variation of the compass.
 - 4. Determination of the latitude by means of the sun or the north star.

II. Weather.

- 1. Monthly summaries of the daily observations, including —
 - a) Prevailing winds.
 - b) Clearing winds — storm winds.
 - c) The *order* of the changes in the direction of the wind during a particular storm — whether veering or backing.
 - d) Kind of clouds before, after, and during a storm.
 - e) The greatest *range* in temperature.
- 2. Notice the *weather flags* and the public forecast.

III. Excursions to —

- 1. Clay pits, glacial drift, gravel plain, and the wind-blown sands along the Delaware.
- 2. Exposures showing the rock-beds, gneiss, shale, and sandstone.

IV. Class-room work.

- 1. The study of specimens of common rocks, soils, and minerals, especially those found in New Jersey, as gneiss, slate, shale, limestone, trap, sandstone, conglomerate, loam, marl, sand, clay, gravel, quartz, feldspar, and mica.
- 2. The study of specimens, showing the first stages in soil-formation. Specimens of disintegrating rock.
- 3. The study of specimens of coal, peat, punk. Specimens of the products of coal.
- 4. Typical pictures of the continent that is being studied.
- 5. Construction of a sand map of the continent under consideration in class.
- 6. Map reading — written. This work is done *before* the new continent is studied.

C. People.

- I. Race.
- II. Nationalities.
- III. Education.
- IV. Religion.
- V. Government.
- VI. General civilization.

A. The earth as a whole.

- I. Shape and size.
- II. Origin.
- III. Motions.
 - 1. Rotation.
 - 2. Revolution.
- IV. Magnetism.
 - 1. Magnetic meridians.
 - 2. Declination of the compass needle, with illustrations of the practical value of this knowledge.

V. Geographical elements.

- 1. Nature of each.
- 2. Motions of each.
- 3. Interrelations.

VI. Atmosphere.

- 1. Composition.
 - a) Use of each element.
 - b) Source of each.
- 2. Height, as known from—
 - a) Height of mountains.
 - b) Flight of birds.
 - c) Clouds.
 - d) Balloon ascensions.
 - e) Falling stars.
- 3. Pressure. Barometer.
- 4. Heating of the air.
 - a) Effect of latitude.
 - b) Effect of altitude.
 - c) Effect of dust.
 - d) Effect of clouds.
 - e) Difference in the effect of land and water services upon the temperature of the air.

5. Winds.
 - a) Cause.
 - b) Effect of earth's rotation.
 - (1) Ferrel's law.
 - (2) Whirl around the poles.
 - (3) Pressure at the tropics.
 - c) Wind belts.
 - (1) Shifting.
 - (2) Limits.
 - d) Influence on climate.
 - (1) Ocean winds.
 - (2) Land winds.
 - e) Seasonal winds.
6. Storms.
 - a) Local storms.
 - b) Weather maps.
 - c) "High" and "lows."
 - d) Forecasts.
 - e) Work of the Weather Bureau.

VII. Sea.

1. Composition.
2. Temperature.
3. Movements.
 - a) Currents.
 - b) Tides.

VIII. Systematic study of earth-forms.

1. Classification of features according to their origin and age.
2. The life-history of the various features illustrating the successive stages in the normal development of each, and the characteristics of the young, mature, and old forms of each class.
3. The accidents that occur and their effects.

IX. Geological development of North America, United States, and New Jersey, making the topographical and geological maps special objects of study.

The order of work is the same as that given under North America.

B. Field and laboratory work.

- I. Observations of the moon.
 1. Appearances.
 2. Time of rising.
 3. Position in the sky each night at this time.

4. Direction of travel.
5. Directions of the concave and convex sides.
6. Period of time in which all the changes occur.

II. Weather.

Observations of local storms.

Forecasting.

III. Excursions to the surrounding country.

IV. Class-room work.

1. Study of the Harvard Models, representing typical earth-forms and illustrating the effects of physiographic processes.
2. Study of the contour maps of physiographic types.
3. The study and construction of—
 - a) Isothermal charts.
 - b) Topographical maps.
 - c) Rain charts.
 - d) Weather maps.
 - e) Relief maps.
4. Library work on special topics.

C. People.

See other outline.

A. Advanced treatment of the continents is continued.

- I. Europe, Asia, South America, Africa, and Australia.
- II. Contrasts and similarities in structure, surface, and climate of all the continents.
- III. Relation between diversity of surface, irregularity of coast line, and advancement of life in each continent.
- IV. Dominant form of relief in each continent and its influence upon the function of the continent in nature and history.
- V. Commerce of the world.

B. Field and laboratory as indicated.

C. People.

PRACTICE.

Let us now turn our attention to the question of practice, which I would define as follows: Practice is the systematic training in the actual work of the schoolroom by means of which the novice acquires skill in performing the duties that belong to the teacher, gains confidence in his own ability successfully to perform these duties, and thus

verifies the theory previously attained. The work of practice embraces three phases, namely :

1. Observation, in which the student witnesses the work of skilled teachers with pupils. The work thus witnessed must be a model of correct method and good teaching.

2. Instruction by the pupil-teachers themselves of classes of children. This is done under the direction of critic-teachers.

3. Conferences, in which, under the training-teachers, the observation work, the teaching, the lesson-plans, the discipline of the pupil-teachers are discussed, and careful instruction is given to them.

Perhaps a brief description of our organization will assist in making clear the plan of practice-teaching at Trenton and the end sought.

We have a three-years' course, each year being divided into two half-year classes denominated B I and B II, A I and A II, Sen. I and Sen. II. The work of the first year and a half is principally academic, emphasis, however, being laid upon the methods of presenting each subject. Psychology is begun in the A I class and history of education in the A II. Thus the student is gradually introduced to the professional subjects, which increase in number and scope as the course advances, while less stress is laid upon the academic work. Through this means the student becomes grounded in the idea of theory according to the second view presented, namely, that of a knowledge of the material to be taught and the plan of teaching it.¹

He is now ready to receive the instruction in practice. This begins in the A II class and consists of observation followed by discussion and criticism. The training-teacher takes a whole division of thirty or forty students, gives them preliminary instruction as to what they are to observe, and then goes with them to witness a model class-exercise. At first attention is concentrated upon one or two points—as, for example, how to hold the attention, the correlation of material, plan of the lesson, etc. A period of observation is followed by perhaps two or three days' discussion of the lesson, in which the students are closely questioned as to what they have seen, and their attention is called to what they should have seen.

Gradually more points are added for them to observe, until finally an entire model lesson is included. Then the student is required to discuss the whole lesson without any aid, except that of a general outline which the training-teacher has furnished. This completes the

¹ Illustrated by the work in geography as presented in the foregoing pages.

preliminary observation work. The students, however, are taught how to prepare the lesson-plans, which are an important feature of the work which follows. Ten weeks are employed in the foregoing, which, as the exercises are daily, would seem to be sufficient.

The second stage in practice consists in actual teaching by the novice himself. The young student, whose attitude in school has been that of a recipient of instruction, begins to grasp the idea that he has something to give, and to feel an impulse to teach. We may therefore speak of him hereafter as a pupil-teacher. During the last half of the A II class, and the whole of Sen. I, that is, three-quarters of a year, about one-third of the time of the pupil-teacher is employed in practice. Each class is divided into groups of not more than ten, who are assigned specific work. One of the group teaches a class while the others observe. This instruction is carried on in the presence of the grade-teacher, who also is a critic. The training-teacher divides his time among the various classes that are going on simultaneously. The pupil-teacher who is to conduct the lesson must present a written lesson-plan, which is criticised by both the grade- and the training-teacher. Thus every precaution is taken to insure most careful preparation for each lesson before it may be given. This serves not only as a protection to the children in the training-school, but it also instructs the young teacher how to prepare each day's work when he enters upon a permanent position.

The character of the work that the observers have done is readily discovered in the weekly conferences, where the teaching is criticised, and where indifference or inattention on the part of any member of the group will soon appear. The observation by the pupil-teachers assumes a deeper meaning than that of the previous term, for they are held to a closer account, and are, in a sense, participants of each recitation whether conducted by themselves or by a classmate. The observers are required to note the different methods employed, to see where there is originality, to discover the source of power or cause of weakness, to find out the means employed to awaken interest, to consider the matter of discipline, and to measure the work as to its logical arrangement and execution. Besides this general observation of the whole class, each pupil-teacher is encouraged to select some child and watch his progress from day to day—a practical application of the theory of child study.

At the weekly conferences the teaching done by the various pupil-

teachers is considered, the other students who have been observers are invited to express themselves with greatest freedom, and all join in the discussion of the work, the training-teacher having the final word. Besides this the young teacher is expected to go to both the grade- and the training-teacher for private criticism. He thus has the advantage of the wisdom and experience of trained and competent critics, who at the same time are sympathetic in their attitude toward him, as well as just.

This work of observing, teaching, discussing, and criticising is continued until the pupil-teachers have satisfied the training-teacher that they have acquired the skill and confidence which have been pointed out as the ends to be reached. Some will succeed sooner than others, but all must continue until the result demanded has been attained, and no one can be passed to the next class or graduated until this has been accomplished.

There still remains the work of the Sen. II, the graduating class. In the meantime the study of theory in the general sense—that of psychology, history of education, school management, philosophy of education, etc.—continues, thus broadening the young novice's view, preparing him better to understand his practice, and introducing him farther into the spirit and modes of thought of the teacher.

We recognize that there remains another phase of practice-teaching to which the young teacher must be introduced. The model school, with its small classes, its full complement of grade teachers who are always present at the lessons, its splendid equipment, its ideal conditions, is quite different from the average school where a position is likely to be secured. Hence we send all of the members of the graduating class out into the state for a month's practice in the public schools. This is the culmination of their practice-work and it brings them into contact with the actual school life upon which they will enter later. Every facility is afforded them by the public-school teachers to gain experience. A final report is made to the normal school as to the character of work done. This has proved an excellent experience to our young men and women. We find that they come back from their four weeks' work with a marked gain in self-confidence and a deeper appreciation of the vocation of teaching. The principals to whom they are sent give them kindly criticism and instruction. Without cordial co-operation from the teachers of the state, a scheme of this kind would fail.

Mutual benefit to both parties also often follows. If a new teacher is needed for the succeeding year the principal has a good opportunity to judge of the merits of the one who practices with him, far better than could be afforded by correspondence or by a conference. On the other hand the pupil-teacher himself is placed on his mettle to prove that he is worthy of an invitation to a position. Thus the month's experiment often results in a satisfactory appointment. Of course four weeks' work is not sufficient to turn the novice into an experienced teacher. But it is at least a beginning under normal conditions such as no practice school can furnish. It therefore offers a kind of training that is seldom provided for in normal schools, a training which I submit is most important and highly practical.

I have thus briefly presented the idea of practice which controls at Trenton. While it is not claimed to be ideal, it will furnish some features for the consideration of the association which may be unique, and which may be studied not without profit. At least this scheme fairly harmonizes the idea of theory and practice as set forth at the beginning of this paper, and in practice our pupil-teachers secure considerable skill and confidence in the teaching and management of a class of children—and these are the ends that we understand should be sought in practice.

**PRELIMINARY PLAN FOR INQUIRY INTO THE RELATION
OF THEORY TO PRACTICE IN (A) UNIVERSITIES, (B)
NORMAL SCHOOLS, (C) CITY TRAINING SCHOOLS.**

- I. An historical account of what was formerly done by such institutions.
- II. A brief account of what is now being done under the following headings :
 - A. Universities :
 1. In which there is a separate department of education.
 2. In which there is a distinct "school of education." (To what extent and how is a relation of theory to practice shown? To what extent do universities depend upon actually proved teaching power as an evidence of one's understanding of the relation of theory to practice? What difficulties are in the way of such a requirement? To what extent does the maturity of university students render actual teaching under supervision unnecessary?)
 - B. In Normal Schools :
 1. In which the management of the practice school and the supervision of the practice teaching is a separate department.
 2. In which the various departments of the school control the course of study in the practice school, and in their classes illustrate with pupils from the practice school the method of handling the material.
 3. In which actual skill in class-room management and teaching is the test of one's appreciation of the relation of theory to practice.
 - C. In City Training Schools :
 1. In which courses in theory and observation are required.
 2. In which courses in theory and regular cadetting are required.
 3. In which courses in theory, observation, cadetting, and conferences are required.

III. What is the most effective relation of theory to practice?

A. In Universities :

1. In which there is a separate department of education.
2. In which there is a "school of education." (How should students be trained for teaching in secondary schools? For the work of superintendents? The uses and organization of demonstration schools and experiment schools.)

B. In Normal Schools :

1. In which the theory is given by one set of instructors and the practice under the supervision of another set.
2. In which each department is responsible for its own course of study in the practice school and for the supervision of the practice teaching in that particular subject. (What are the objections to the second plan? In what ways may it be made to supplement the first plan? To what extent is it (a) possible and (b) desirable that instruction in "special method" in such subjects as reading, arithmetic, etc., be given in the regular normal-school classes in these subjects? What are the most serious defects in the supervision of practice teaching when done by the regular normal-school instructors? In gaining teaching skill, what are the relative values of, and the order in which they should come, (a) a study and reflection upon theory, (b) observation of excellent teaching, and (c) actual teaching?)

C. In City Training Schools (Same questions as for normal schools) :

IV. In such a plan as is proposed for any one of these schools, indicate the relative values of and what you conceive to be the essentials of:

- A. History of Education.
- B. Psychology.
- C. Pedagogy.
- D. School Organization and Management.
- E. Philosophy of Education.
- F. Ethics.
- G. Sociology.
- H. Special method in various school subjects.
- I. Actual teaching experience. How much and under what conditions?

THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

MINUTES OF THE BUSINESS MEETING AT CINCINNATI, FEBRUARY 25, 1903.

CHARLES DE GARMO, Chairman.
C. A. McMURRY, Secretary.

In the election of officers Wilbur S. Jackman was chosen President. C. P. Cary was chosen a member of the Executive Committee to fill the vacancy caused by the death of Edward R. Shaw.

Charles A. McMurry was re-elected Secretary-Treasurer.

The following resolution was adopted :

Resolved, That the first meeting of each session shall be held on the day before the meeting of the National Education Association, the second meeting on some later day; both meetings being executive sessions at which only active members and those specially invited by the President of the Society shall be present.

After full discussion of the character of the papers to be prepared for the YEARBOOKS a motion was adopted to appoint a committee of three which should prepare a plan for an investigation of the topic, "The Relation of Theory to Practice in Teaching."

Mr. John A. Keith was afterward appointed chairman of this committee.

LIST OF ACTIVE MEMBERS.

Frank G. Blair, State Normal School, Charleston, Ill.
Richard G. Boone, superintendent, Cincinnati, O.
Francis B. Brant, 1637 S. Fifteenth street, Philadelphia, Pa.
Elmer E. Brown, University of California, Berkeley, Calif.
George P. Brown, editor, Bloomington, Ill.
Martin G. Brumbaugh, 3324 Walnut street, Philadelphia, Pa.
William L. Bryan, University of Indiana, Bloomington, Ind.
George V. Buchanan, 614 W. Seventh street, Sedalia, Mo.
Edward F. Buchner, University of Alabama, University, Ala.
Frederick Burk, State Normal School, San Francisco, Calif.
Nicholas Murray Butler, Columbia University, New York, N. Y.
C. P. Cary, Madison, Wis.
Clarence F. Carroll, Worcester, Mass.
John W. Cook, State Normal School, DeKalb, Ill.
Ellwood I. Cubberly, Stanford University, California.
Washington S. Dearmont, State Normal School, Cape Girardeau, Mo.
Charles DeGarmo, Cornell University, Ithaca, N. Y.,
John Dewey, University of Chicago, Chicago, Ill.
Edwin D. Dexter, Urbana, Ill.
Richard E. Dodge, Columbia University, New York, N. Y.
F. B. Dresslar, University of California, Berkeley, Calif.
Samuel T. Dutton, Columbia University, New York, N. Y.
Charles B. Dyke, Kamehameha School, Honolulu, H. I.
W. H. Elson, Grand Rapids, Mich.
David Felmley, State Normal University, Normal, Ill.
Frank A. Fitzpatrick, Boston, Mass.
Charles B. Gilbert, New York, N. Y., D. Appleton & Co.
Newell D. Gilbert, DeKalb, Ill.
J. P. Gordy, Ohio State University, Columbus, O.
James M. Greenwood, Kansas City, Mo.
W. N. Hailman, Boston, Mass., Ainsworth & Co.
Reuben P. Halleck, Boys' High School, Louisville, Ky.
Rufus H. Halsey, State Normal School, Oshkosh, Wis.
Walter L. Hervey, 320 Manhattan avenue, New York, N. Y.
Edgar L. Hewett, Las Vegas, N. M.
M. J. Holmes, State Normal University, Normal, Ill.
Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.

- Lewis H. Jones, State Normal College, Ypsilanti, Mich.
Grant Carr, Normal School, Oswego, N. Y.
J. A. Keith, Northern Illinois State Normal School, DeKalb, Ill.
Ossian H. Lang, editor, 61 E. Ninth street, New York, N. Y.
George H. Locke, University of Chicago, Chicago, Ill.
Livingston C. Lord, State Normal School, Charleston, Ill.
G. W. A. Luckey, Lincoln, Neb.
**Frank A. Manny, Ethical Culture Schools, 109 W. Fifty-fourth street,
New York, N. Y.**
Guy E. Maxwell, State Normal School, Winona, Minn.
William H. Maxwell, superintendent of schools, New York, N. Y.
Charles McKenny, Normal School, Milwaukee, Wis.
Charles A. McMurry, State Normal School, DeKalb, Ill.
Frank M. McMurry, Teachers College, New York, N. Y.
Israel C. McNeil, Normal School, West Superior, Wis.
Will S. Monroe, State Normal School, Westfield, Mass.
Ernest C. Moore, University of California, Berkeley, Calif.
Frank Morton, Lowell High School, San Francisco, Calif.
Theodore B. Noss, State Normal School, California, Pa.
M. V. O'Shea, University of Wisconsin, Madison, Wis.
Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
John T. Prince, West Newton, Mass.
C. M. Richards, 230 W. One Hundred and Fifth street, New York, N. Y.
Stuart H. Rowe, 30 Academy street, New Haven, Conn.
J. E. Russell, Teachers College, New York, N. Y.
Myron T. Scudder, State Normal School, New Paltz, N. Y.
Levi Seeley, State Normal School, 482 W. State street, Trenton, N. J.
David E. Smith, Teachers College, New York, N. Y.
Z. X. Snyder, State Normal School, Greeley, Colo.
F. Louis Soldan, Ninth and Locust streets, St. Louis, Mo.
Edward D. Starbuck, Leland Stanford University, Palo Alto, Calif.
W. S. Sutton, University of Texas, Austin, Tex.
C. C. VanLiew, State Normal School, Chico, Calif.
James H. VanSickle, Baltimore, Md.
Samuel Weir, Clarion Normal School, Clarion, Pa.
J. J. Wilkinson, Illinois.
Lightner Witmer, University of Pennsylvania, Philadelphia, Pa.
L. E. Wolfe, San Antonio, Tex.

ACTIVE MEMBERS ELECTED IN 1902.

- Edwin A. Alderman, president Tulane University, New Orleans, La.
Frederick Bolton, Iowa City, Ia.
W. H. Burnham, Clark University, Worcester, Mass.

- B. C. Caldwell, president Louisiana State Normal, Natchitoches, La.
P. P. Claxton, Southern Education Board, Knoxville, Tenn.
Newton C. Dougherty, Peoria, Ill.
Augustus S. Downing, One Hundred and Nineteenth street and Second
avenue, New York, N. Y.
Frank M. Darling, 320 W. Sixty-first place, Chicago.
Paul Henry Hanus, Harvard University, Cambridge, Mass.
Mrs. Josephine W. Heermans, Brunswick Hotel, Kansas City, Mo.
John R. Kirk, State Normal School, Kirksville, Mo.
Henry E. Kratz, Calumet, Mich.
Isabel Lawrence, Normal School, St. Cloud, Minn.
Charles D. Lowry, 307 Touhy avenue, Chicago.
Herman T. Luckens, Normal School, California, Pa.
President E. O. Lyte, Normal School, Millersville, Pa.
C. E. Mann, St. Charles, Ill.
David R. Major, Columbus, O.
J. F. Millspaugh, State Normal School, Winona, Minn.
Paul Monroe, Columbia University, New York, N. Y.
John H. Phillips, Birmingham, Ala.
J. F. Reigart, 109 W. Fifty-fourth street, New York, N. Y.
Lucy M. Salmon, Poughkeepsie, N. Y.
H. W. Shryock, State Normal School, Carbondale, Ill.
Herbert M. Slauson, Ann Arbor, Mich.
Sarah J. Walter, Willimantic, Conn.
Charles H. Thurber, Ginn & Co., Boston, Mass.
J. M. Wilkinson, Emporia, Kan.
A. S. Whitney, University of Michigan, Ann Arbor, Mich.

ACTIVE MEMBERS ELECTED AT CINCINNATI IN 1903.

- Miss Ada VanStone Harris, City Schools, Rochester, N. Y.
Frank Bachman, Normal College, Athens, O.
Jesse D. Burks, 557 W. Twelfth street, New York, N. Y.
R. H. Beggs, Whittier School, Denver, Colo.
Burgess Shank, Berea, O.
J. W. Stearns, University of Wisconsin, Madison, Wis.
Joseph S. Taylor, 2275 Acqueduct avenue, University Heights, New
York, N. Y.
Guy Montrose Whipple, Cornell University, Ithaca, N. Y.
Arthur C. Clements, State University, Albany, N. Y.
Zonia Baber, School of Education, University of Chicago, Chicago, Ill.
C. M. Bardwell, Aurora, Ill.
E. C. Branson, Normal School, Athens, Ga.

- Stratton D. Brooks, Mason street, Boston, Mass.
E. W. Chubb, Athens, O.
David E. Cloyd, 116 Nassau street, New York, N. Y.
Wm. J. Crane, Marshalltown, Iowa.
Wm. M. Davidson, Topeka, Kan.
Andrew W. Edson, Park avenue and Fifty-ninth street, New York, N. Y.
A. Kaswell Ellis, University of Texas, Austin, Tex.
George M. Forbes, Rochester University, Rochester, N. Y.
R. S. Garwood, Marshall, Mich.
E. C. Glass, Lynchburg, Va.
John Glotfelter, Emporia, Kan.
W. H. Hatch, Oak Park, Ill.
J. W. Henninger, State Normal School, Macomb, Ill.
W. W. Howe, White Hall, N. Y.
J. I. Jegi, Normal School, Milwaukee, Wis.
John A. MacVannel, Columbia University, New York, N. Y.
R. N. Roark, Kentucky University, Lexington, Ky.
J. R. Street, University of Syracuse, Syracuse, N. Y.
Wm. A. Millis, Crawfordsville, Ind.
R. R. Reeder, Hastings-on-Hudson, New York.
Emily J. Rice, School of Education, University of Chicago, Chicago, Ill.
O. I. Woodley, Menominee, Mich.

THE THIRD YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART I

THE RELATION OF THEORY TO PRACTICE IN THE EDUCATION OF TEACHERS

(1) JOHN DEWEY; (2) SARAH C. BROOKS; (3) F. M. McMURRY, T. D.
WOOD, D. E. SMITH, C. H. FARNSWORTH, G. R. RICHARDS

EDITED BY
CHARLES A. McMURRY

MEETINGS OF ACTIVE MEMBERS FOR THE DISCUSSION OF THESE PAPERS WILL BE
HELD AT 4:00 P.M., MONDAY, FEBRUARY 22, AND AT 2:30 P.M.,
WEDNESDAY, FEBRUARY 24, 1904, PIEDMONT
HOTEL, ATLANTA, GA.

CHICAGO
THE UNIVERSITY OF CHICAGO PRESS
1904

COPYRIGHT, 1904, BY
CHARLES A. McMURRY
CHICAGO, ILLINOIS

NOTICE TO ACTIVE MEMBERS.

THERE will be two meetings at Atlanta for the discussion of these papers by active members. It is requested that the active members, as far as possible, attend these meetings and come prepared for careful discussion.

It is recommended that local round tables be organized at schools engaged in the education and training of teachers for more general and thorough discussion of this important phase of education.

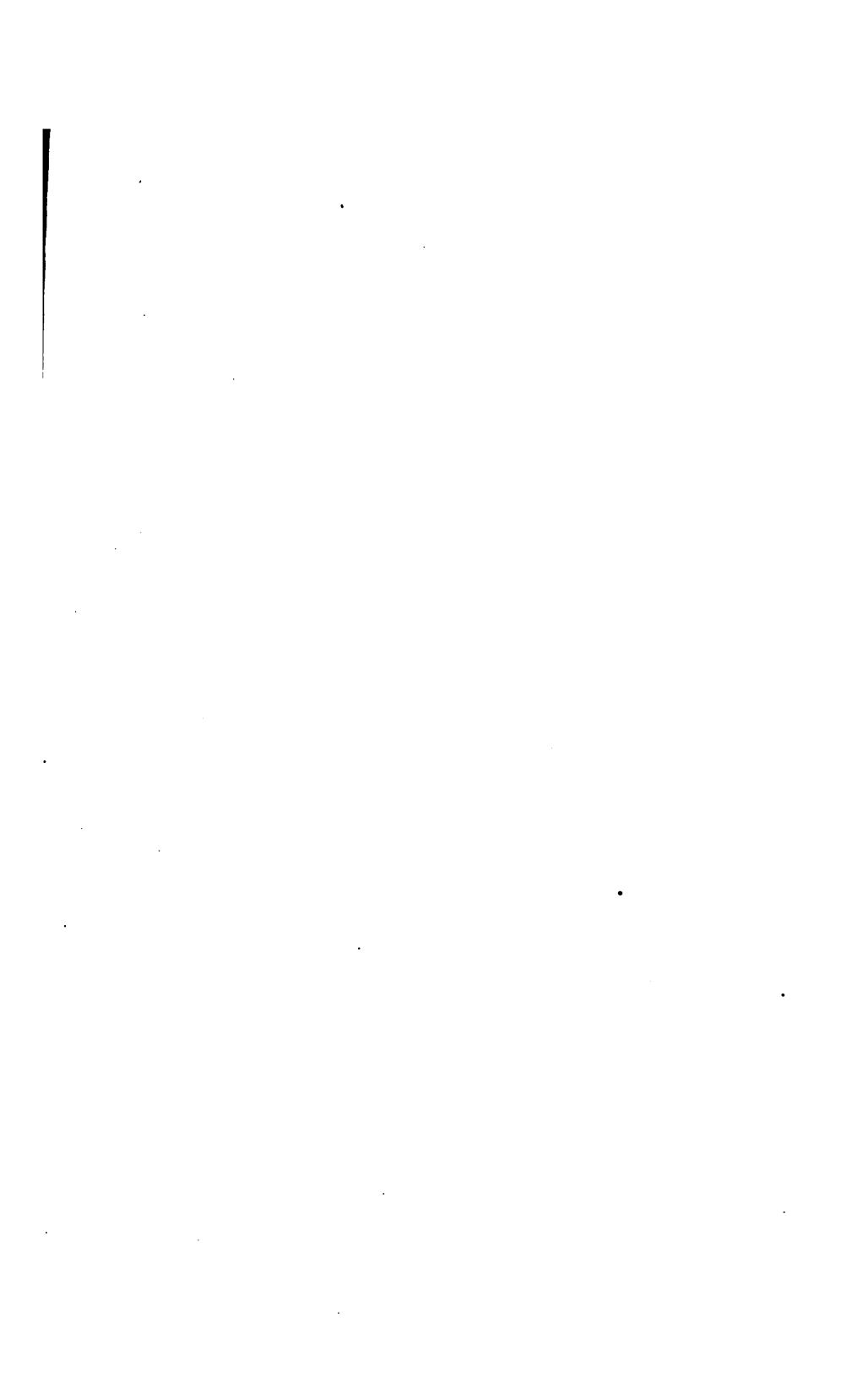
Those holding such meetings can secure additional copies of the **YEARBOOK**, and any of the previously published **YEARBOOKS** of the National Herbart Society, from The University of Chicago Press, Chicago, Illinois.

OFFICERS AND EXECUTIVE COMMITTEE
OF THE
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF
EDUCATION

WILBUR S. JACKMAN, School of Education, University of Chicago, *President*
CHARLES DEGARMO - - - - Cornell University, New York
WILLIAM L. BRYAN - - - University of Indiana, Bloomington, Ind.
DAVID FELMLEY - - - State Normal University, Normal, Ill.
C. P. CARY - - - State Superintendent, Madison, Wis.
CHARLES A. McMURRY, Northern Illinois State Normal School,
DeKalb, Ill., *Secretary-Treasurer.*

CONTENTS.

	PAGE
THE RELATION OF THEORY TO PRACTICE IN EDUCATION. <i>John Dewey</i>	9
RELATION OF THEORY TO PRACTICE. <i>Sarah C. Brooks</i>	31
THEORY AND PRACTICE AT TEACHERS COLLEGE, COLUMBIA UNIVERSITY. <i>F. M. McMurry, T. D. Wood, D. E. Smith, C. H. Farnsworth, G. R. Richards</i>	43
LIST OF ACTIVE MEMBERS	65



THE THIRD YEARBOOK

THE RELATION OF THEORY TO PRACTICE IN EDUCATION.¹

JOHN DEWEY,

The University of Chicago, Chicago, Ill.

It is difficult, if not impossible, to define the proper relationship of theory and practice without a preliminary discussion, respectively, (1) of the nature and aim of theory; (2) of practice.

A. I shall assume without argument that adequate professional instruction of teachers is not exclusively theoretical, but involves a certain amount of practical work. The primary question as to the latter is the aim with which it shall be conducted. Two controlling purposes may be entertained so different from each other as radically to alter the amount, conditions, and method of practice work. On one hand, we may carry on the practical work with the object of giving teachers in training working command of the necessary tools of their profession; control of the technique of class instruction and management; skill and proficiency in the work of teaching. With this aim in view, practice work is, as far as it goes, of the nature of apprenticeship. On the other hand, we may propose to use practice work as an instrument in making real and vital theoretical instruction; the knowledge of subject-matter and of principles of education. This is the laboratory point of view.

The contrast between the two points of view is obvious; and the two aims together give the limiting terms within which all practice work falls. From one point of view, the aim is to form and equip the actual teacher; the aim is immediately as well as ultimately practical. From the other point of view, the *immediate* aim, the way of

¹This paper is to be taken as representing the views of the writer, rather than those of any particular institution in an official way; for the writer thought it better to discuss certain principles that seem to him fundamental, rather than to define a system of procedure.

getting at the ultimate aim, is to supply the intellectual method and material of good workmanship, instead of making on the spot, as it were, an efficient workman. Practice work thus considered is administered primarily with reference to the intellectual reactions it incites, giving the student a better hold upon the educational significance of the subject-matter he is acquiring, and of the science, philosophy, and history of education. Of course, the *results* are not exclusive. It would be very strange if practice work in doing what the laboratory does for a student of physics or chemistry in way of securing a more vital understanding of its principles, should not at the same time insure some skill in the instruction and management of a class. It would also be peculiar if the process of acquiring such skill should not also incidentally serve to enlighten and enrich instruction in subject-matter and the theory of education. None the less, there is a fundamental difference in the conception and conduct of the practice work according as one idea or the other is dominant and the other subordinate. If the primary object of practice is acquiring skill in performing the duties of a teacher, then the amount of time given to practice work, the place at which it is introduced, the method of conducting it, of supervising, criticising, and correlating it, will differ widely from the method where the laboratory ideal prevails; and *vice versa*.

In discussing this matter, I shall try to present what I have termed the laboratory, as distinct from the apprentice idea. While I speak primarily from the standpoint of the college, I should not be frank if I did not say that I believe what I am going to say holds, *mutatis mutandis*, for the normal school as well.

I. I first adduce the example of other professional schools. I doubt whether we, as educators, keep in mind with sufficient constancy the fact that the problem of training teachers is one species of a more generic affair—that of training for professions. Our problem is akin to that of training architects, engineers, doctors, lawyers, etc. Moreover, since (shameful and incredible as it seems) the vocation of teaching is practically the last to recognize the need of specific professional preparation, there is all the more reason for teachers to try to find what they may learn from the more extensive and matured experience of other callings. If now we turn to what has happened in the history of training for other professions, we find the following marked tendencies:

i. The demand for an increased amount of scholastic attainments as a prerequisite for entering upon professional work.

2. Development of certain lines of work in the applied sciences and arts, as centers of professional work; compare, for example, the place occupied by chemistry and physiology in medical training at present, with that occupied by chairs of "practice" and of "*materia medica*" a generation ago.

3. Arrangement of the practical and quasi-professional work upon the assumption that (limits of time, etc., being taken into account) the professional school does its best for its students when it gives them typical and intensive, rather than extensive and detailed, practice. It aims, in a word, at *control of the intellectual methods* required for personal and independent mastery of practical skill, rather than at turning out at once masters of the craft. This arrangement necessarily involves considerable postponement of skill in the routine and technique of the profession, until the student, after graduation, enters upon the pursuit of his calling.

These results are all the more important to us because other professional schools mostly started from the same position which training schools for teachers have occupied. Their history shows a period in which the idea was that students ought from the start to be made as proficient as possible in practical skill. In seeking for the motive forces which have caused professional schools to travel so steadily away from this position and toward the idea that practical work should be conducted for the sake of vitalizing and illuminating *intellectual* methods two reasons may be singled out:

a) First, the limited time at the disposal of the schools, and the consequent need of economy in its employ. It is not necessary to assume that apprenticeship is of itself a bad thing. On the contrary, it may be admitted to be a good thing; but the time which a student spends in the training school is short at the best. Since short, it is an urgent matter that it be put to its most effective use; and, relatively speaking, the wise employ of this short time is in laying scientific foundations. These cannot be adequately secured when one is doing the actual work of the profession, while professional life does afford time for acquiring and perfecting skill of the more technical sort.

b) In the second place, there is inability to furnish in the school adequate conditions for the best acquiring and using of skill. As compared with actual practice, the best that the school of law or medicine can do is to provide a somewhat remote and simulated copy of the real thing. For such schools to attempt to give the skill which

comes to those adequately prepared, insensibly and unavoidably in actual work, is the same sort of thing as for grammar schools to spend months upon months in trying to convey (usually quite unsuccessfully) that skill in commercial arithmetic which comes, under penalty of practical failure, in a few weeks in the bank or counting-house.

It may be said that the analogy does not hold good for teachers' training schools, because such institutions have model or practice departments, supplying conditions which are identical with those which the teacher has to meet in the actual pursuit of his calling. But this is true at most only in such normal schools as are organized after the Oswego pattern—schools, that is to say, where the pupil-teacher is given for a considerable period of time the entire charge of instruction and discipline in the class-room, and does not come under a room critic-teacher. In all other cases, some of the most fundamentally significant features of the real school are reduced or eliminated. Most "practice schools" are a compromise. In theory they approximate ordinary conditions. As matter of fact, the "best interests of the children" are so safeguarded and supervised that the situation approaches learning to swim without going *too* near the water.

There are many ways that do not strike one at first glance, for removing the conditions of "practice work" from those of actual teaching. Deprivation of responsibility for the discipline of the room; the continued presence of an expert ready to suggest, to take matters into his own hands; close supervision; reduction of size of group taught; etc., etc., are some of these ways. The topic of "lesson plans" will be later referred to in connection with another topic. Here they may be alluded to as constituting one of the modes in which the conditions of the practice-teacher are made unreal. The student who prepares a number of more or less set lessons; who then has those lesson plans criticised; who then has his actual teaching criticised from the standpoint of success in carrying out the prearranged plans, is in a totally different attitude from the teacher who has to build up and modify his teaching plans as he goes along from experience gained in contact with pupils.

It would be difficult to find two things more remote from each other than the development of subject-matter under such control as is supplied from actual teaching, taking effect through the teacher's own initiative and reflective criticism, and its development with an eye fixed upon the judgment, presumed and actual, of a superior super-

visory officer. Those phases of the problem of practice teaching which relate more distinctly to responsibility for the discipline of the room, or of the class, have received considerable attention in the past; but the more delicate and far-reaching matter of intellectual responsibility is too frequently ignored. Here centers the problem of securing conditions which will make practice work a genuine apprenticeship.

II. To place the emphasis upon the securing of proficiency in teaching and discipline *puts the attention of the student-teacher in the wrong place, and tends to fix it in the wrong direction*—not wrong absolutely, but relatively as regards perspective of needs and opportunities. The would-be teacher has some time or other to face and solve two problems, each extensive and serious enough by itself to demand absorbing and undivided attention. These two problems are:

1. Mastery of subject-matter from the standpoint of its educational value and use; or, what is the same thing, the mastery of educational principles in their application to that subject-matter which is at once the material of instruction and the basis of discipline and control;

2. The mastery of the technique of class management.

This does not mean that the two problems are in any way isolated or independent. On the contrary, they are strictly correlative. *But the mind of a student cannot give equal attention to both at the same time.*

The difficulties which face a beginning teacher, who is set down for the first time before a class of from thirty to sixty children, in the responsibilities not only of instruction, but of maintaining the required order in the room as a whole, are most trying. It is almost impossible for an old teacher who has acquired the requisite skill of doing two or three distinct things simultaneously—skill to see the room as a whole while hearing one individual in one class recite, of keeping the program of the day and, yes, of the week and of the month in the fringe of consciousness while the work of the hour is in its center—it is almost impossible for such a teacher to realize all the difficulties that confront the average beginner.

There is a technique of teaching, just as there is a technique of piano-playing. The technique, if it is to be educationally effective, is dependent upon principles. But it is possible for a student to acquire outward form of method without capacity to put it to genuinely educative use. As every teacher knows, children have an inner and an outer attention. The inner attention is the giving of the mind without

reserve or qualification to the subject in hand. It is the first-hand and personal play of mental powers. As such, it is a fundamental condition of mental growth. To be able to keep track of this mental play, to recognize the signs of its presence or absence, to know how it is initiated and maintained, how to test it by results attained, and to test *apparent* results by it, is the supreme mark and criterion of a teacher. It means insight into soul-action, ability to discriminate the genuine from the sham, and capacity to further one and discourage the other.

External attention, on the other hand, is that given to the book or teacher as an independent object. It is manifested in certain conventional postures and physical attitudes rather than in the movement of thought. Children acquire great dexterity in exhibiting in conventional and expected ways the *form* of attention to school work, while reserving the inner play of their own thoughts, images, and emotions for subjects that are more important to them, but quite irrelevant.

Now, the teacher who is plunged prematurely into the pressing and practical problem of keeping order in the schoolroom has almost of necessity to make supreme the matter of external attention. The teacher has not yet had the training which affords psychological insight—which enables him to judge promptly (and therefore almost automatically) the kind and mode of subject-matter which the pupil needs at a given moment to keep his attention moving forward effectively and healthfully. He does know, however, that he must maintain order; that he must keep the attention of the pupils fixed upon his own questions, suggestions, instructions, and remarks, and upon their "lessons." The inherent tendency of the situation therefore is for him to acquire his technique in relation to the outward rather than the inner mode of attention.

III. Along with this fixation of attention upon the secondary at the expense of the primary problem, there goes the formation of habits of work which have an empirical, rather than a scientific, sanction. The student adjusts his actual methods of teaching, not to the principles which he is acquiring, but to what he sees succeed and fail in an empirical way from moment to moment: to what he sees other teachers doing who are more experienced and successful in keeping order than he is; and to the injunctions and directions given him by others. In this way the controlling habits of the teacher finally get fixed with comparatively little reference to principles in the psychology, logic, and history of education. In theory, these latter are dominant; in

practice, the moving forces are the devices and methods which are picked up through blind experimentation; through examples which are not rationalized; through precepts which are more or less arbitrary and mechanical; through advice based upon the experience of others. Here we have the explanation, in considerable part at least, of the dualism, the unconscious duplicity, which is one of the chief evils of the teaching profession. There is an enthusiastic devotion to certain principles of lofty theory in the abstract—principles of self-activity, self-control, intellectual and moral—and there is a school practice taking little heed of the official pedagogic creed. Theory and practice do not grow together out of and into the teacher's personal experience.

Ultimately there are two bases upon which the habits of a teacher as a teacher may be built up. They may be formed under the inspiration and constant criticism of intelligence, applying the best that is available. This is possible only where the would-be teacher has become fairly saturated with his subject-matter, and with his psychological and ethical philosophy of education. Only when such things have become incorporated in mental habit, have become part of the working tendencies of observation, insight, and reflection, will these principles work automatically, unconsciously, and hence promptly and effectively. And this means that practical work should be pursued primarily with reference to its reaction upon the professional pupil in making him a thoughtful and alert student of education, rather than to help him get immediate proficiency.

For immediate skill may be got at the cost of power to go on growing. The teacher who leaves the professional school with power in managing a class of children may appear to superior advantage the first day, the first week, the first month, or even the first year, as compared with some other teacher who has a much more vital command of the psychology, logic, and ethics of development. But later "progress" may with such consist only in perfecting and refining skill already possessed. Such persons seem to know how to teach, but they are not students of teaching. Even though they go on studying books of pedagogy, reading teachers' journals, attending teachers' institutes, etc., yet the root of the matter is not in them, unless they continue to be students of subject-matter, and students of mind-activity. Unless a teacher is such a student, he may continue to improve in the mechanics of school management, but he can not grow as a teacher, an inspirer and director of soul-life. How often do candid instructors in-

training schools for teachers acknowledge disappointment in the later career of even their more promising candidates! They seem to strike twelve at the start. There is an unexpected and seemingly unaccountable failure to maintain steady growth. Is this in some part due to the undue premature stress laid in early practice work upon securing immediate capability in teaching?

I might go on to mention other evils which seem to me to be more or less the effect of this same cause. Among them are the lack of intellectual independence among teachers, their tendency to intellectual subserviency. The "model lesson" of the teachers' institute and of the educational journal is a monument, on the one hand, of the eagerness of those in authority to secure immediate practical results at any cost; and, upon the other, of the willingness of our teaching corps to accept without inquiry or criticism any method or device which seems to promise good results. Teachers, actual and intending, flock to those persons who give them clear-cut and definite instructions as to just how to teach this or that.

The tendency of educational development to proceed by reaction from one thing to another, to adopt for one year, or for a term of seven years, this or that new study or method of teaching, and then as abruptly to swing over to some new educational gospel, is a result which would be impossible if teachers were adequately moved by their own independent intelligence. The willingness of teachers, especially of those occupying administrative positions, to become submerged in the routine detail of their callings, to expend the bulk of their energy upon forms and rules and regulations, and reports and percentages, is another evidence of the absence of intellectual vitality. If teachers were possessed by the spirit of an abiding student of education, this spirit would find some way of breaking through the mesh and coil of circumstance and would find expression for itself.

B. Let us turn from the practical side to the theoretical. What must be the aim and spirit of theory in order that practice work may really serve the purpose of an educational laboratory? We are met here with the belief that instruction in theory is merely theoretical, abstruse, remote, and therefore relatively useless to the teacher as a teacher, unless the student is at once set upon the work of teaching; that only "practice" can give a motive to a professional learning, and supply material for educational courses. It is not infrequently claimed (or at least unconsciously assumed) that students will not have a pro-

fessional stimulus for their work in subject-matter and in educational psychology and history, will not have any outlook upon their relation to education, unless these things are immediately and simultaneously reinforced by setting the student upon the work of teaching. But is this the case? Or are there practical elements and bearings already contained in theoretical instruction of the proper sort?

I. Since it is impossible to cover in this paper all phases of the philosophy and science of education, I shall speak from the standpoint of psychology, believing that this may be taken as typical of the whole range of instruction in educational theory as such.

In the first place, beginning students have without any reference to immediate teaching a very large capital of an exceedingly practical sort in their own experience. The argument that theoretical instruction is merely abstract and in the air unless students are set at once to test and illustrate it by practice-teaching of their own, *overlooks the continuity of the class-room mental activity with that of other normal experience*. It ignores the tremendous importance for educational purposes of this continuity. Those who employ this argument seem to isolate the psychology of learning that goes on in the schoolroom from the psychology of learning found elsewhere.

This isolation is both unnecessary and harmful. It is unnecessary, tending to futility, because it throws away or makes light of the greatest asset in the student's possession—the greatest, moreover, that ever will be in his possession—his own direct and personal experience. There is every presumption (since the student is not an imbecile) that he has been learning all the days of his life, and that he is still learning from day to day. He must accordingly have in his own experience plenty of practical material by which to illustrate and vitalize theoretical principles and laws of mental growth in the process of learning. Moreover, since none of us is brought up under ideal conditions, each beginning student has plenty of practical experience by which to illustrate cases of arrested development—instances of failure and maladaptation and retrogression, or even degeneration. The material at hand is pathological as well as healthy. It serves to embody and illustrate both achievement and failure, in the problem of learning.

But it is more than a serious mistake (violating the principle of proceeding from the known to the unknown) to fail to take account of this body of practical experience. Such ignoring tends also to per-

petuate some of the greatest evils of current school methods. Just because the student's attention is not brought to the point of recognizing that *his own* past and present growth is proceeding in accordance with the very laws that control growth in the school, and that there is no psychology of the schoolroom different from that of the nursery, the playground, the street, and the parlor, he comes unconsciously to assume that education in the class-room is a sort of unique thing, having its own laws.¹ Unconsciously, but none the less surely, the student comes to believe in certain "methods" of learning, and hence of teaching which are somehow especially appropriate to the school—which somehow have their particular residence and application there. Hence he comes to believe in the potency for schoolroom purposes of materials, methods, and devices which it never occurs to him to trust to in his experience outside of school.

I know a teacher of teachers who is accustomed to say that when she fails to make clear to a class of teachers some point relative to children, she asks these teachers to stop thinking of their own pupils and to think of some nephew, niece, cousin, some child of whom they have acquaintance in the unformalities of home life. I do not suppose any great argument is needed to prove that breach of continuity between learning within and without the school is the great cause in education of wasted power and misdirected effort. I wish rather to take advantage of this assumption (which I think will be generally accepted) to emphasize the danger of bringing the would-be teacher into an abrupt and dislocated contact with the psychology of the schoolroom—abrupt and dislocated because not prepared for by prior practice in selecting and organizing the relevant principles and data contained within the experience best known to him, his own.²

From this basis, a transition to educational psychology may be made in observation of the teaching of others—visiting classes. I should wish to note here, however, the same principle that I have mentioned as regards practice work, specifically so termed. The first observation of instruction given by model- or critic-teachers should

¹ There is where the plea for "adult" psychology has force. The person who does not know himself is not likely to know others. The adult psychology ought, however, to be just as genetic as that of childhood.

² It may avoid misapprehension if I repeat the word *experience*. It is not a *metaphysical* introspection that I have in mind, but the process of turning back upon one's own experiences, and turning them over to see how they were developed, what helped and hindered, the stimuli and the inhibitions both within and without the organism.

not be too definitely practical in aim. The student should not be observing to find out how the good teacher does it, in order to accumulate a store of methods by which he also may teach successfully. He should rather observe with reference to seeing the interaction of mind, to see how teacher and pupils react upon each other—how mind answers to mind. Observation should at first be conducted from the psychological rather than from the "practical" standpoint. If the latter is emphasized before the student has an independent command of the former, the principle of imitation is almost sure to play an exaggerated part in the observer's future teaching, and hence at the expense of personal insight and initiative. What the student needs most at this stage of growth is ability to see what is going on in the minds of a group of persons who are in intellectual contact with one another. He needs to learn to observe psychologically—a very different thing from simply observing how a teacher gets "good results" in presenting any particular subject.

It should go without saying that the student who has acquired power in psychological observation and interpretation may finally go on to observe more technical aspects of instruction, namely, the various methods and instrumentalities used by a good teacher in giving instruction in any subject. If properly prepared for, this need not tend to produce copiers, followers of tradition and example. Such students will be able to translate the practical devices which are such an important part of the equipment of a good teacher over into their psychological equivalents; to know not merely as a matter of brute fact that they do work, but to know how and why they work. Thus he will be an independent judge and critic of their proper use and adaptation.

In the foregoing I have assumed that educational psychology is marked off from general psychology simply by the emphasis which it puts upon two factors. The first is the stress laid upon a certain end, namely, growth or development—with its counterparts, arrest and adaptation. The second is the importance attached to the social factor—to the mutual interaction of different minds with each other. It is, I think, strictly true that no educational procedure nor pedagogical maxim can be derived directly from pure psychological data. The psychological data taken without qualification (which is what I mean by their being pure) cover everything and anything that may take place in a mind. Mental arrest and decay occur according to psychological laws, just as surely as do development and progress.

We do not make practical maxims out of physics by telling persons to move according to laws of gravitation. If people move at all, they *must* move in accordance with the conditions stated by this law. Similarly, if mental operations take place at all, they *must* take place in accordance with the principles stated in correct psychological generalizations. It is superfluous and meaningless to attempt to turn these psychological principles directly into rules of teaching. But the person who knows the laws of mechanics knows the conditions of which he must take account when he wishes to reach a certain end. He knows that if he aims to build a bridge, he must build it in a certain way and of certain materials, or else he will not have a bridge, but a heap of rubbish. So in psychology. Given an end, say promotion of healthy growth, psychological observations and reflection put us in control of the conditions concerned in that growth. We know that if we are to get that *end*, we must do it in a certain way. It is the subordination of the psychological material to the problem of effecting growth and avoiding arrest and waste which constitutes a distinguishing mark of educational psychology.

I have spoken of the importance of the social factor as the other mark. I do not mean, of course, that general theoretical psychology ignores the existence and significance of the reaction of mind to mind — though it would be within bounds to say that till recently the social side was an unwritten chapter of psychology. I mean that considerations of the ways in which one mind responds to the stimuli which another mind is consciously or unconsciously furnishing possess a relative importance for the educator which they have not for the psychologist as such. From the teacher's standpoint, it is not too much to say that every habit which a pupil exhibits is to be regarded as a reaction to stimuli which some persons or group of persons have presented to the child. It is not too much to say that the most important thing for the teacher to consider, as regards his present relations to his pupils, is the attitudes and habits which his own modes of being, saying, and doing are fostering or discouraging in them.

Now, if these two assumptions regarding educational psychology be granted, I think it will follow as a matter of course, that only by beginning with the values and laws contained in the student's own experience of his own mental growth, and by proceeding gradually to facts connected with other persons of whom he can know little; and by

proceeding still more gradually to the attempt actually to influence the mental operations of others, can educational theory be made most effective. Only in this way can the most essential trait of the mental habit of the teacher be secured—that habit which looks upon the internal, not upon the external; which sees that the important function of the teacher is direction of the mental movement of the student, and that the mental movement must be known before it can be directed.

II. I turn now to the side of subject-matter, or scholarship, with the hope of showing that here too the material, when properly presented, is not so *merely* theoretical, remote from the practical problems of teaching, as is sometimes supposed. I recall that once a graduate student in a university made inquiries among all the leading teachers in the institution with which he was connected as to whether they had received any professional training, whether they had taken courses in pedagogy. The inquirer threw the results, which were mostly negative, into the camp of the local pedagogical club. Some may say that this proves nothing, because college teaching is proverbially poor, considered simply as teaching. Yet no one can deny that there is *some* good teaching, and some teaching of the very first order, done in colleges, and done by persons who have never had any instruction in either the theory or the practice of teaching.

This fact cannot be ignored any more than can the fact that there were good teachers before there was any such thing as pedagogy. Now, I am not arguing for not having pedagogical training—that is the last thing I want. But I claim the facts mentioned prove that scholarship *per se* may itself be a most effective tool for training and turning out good teachers. If it has accomplished so much when working unconsciously and without set intention, have we not good reason to believe that, when acquired in a training school for teachers—with the end of making teachers held definitely in view and with conscious reference to its relation to mental activity—it may prove a much more valuable pedagogical asset than we commonly consider it?

Scholastic knowledge is sometimes regarded as if it were something quite irrelevant to method. When this attitude is even unconsciously assumed, method becomes an external attachment to knowledge of subject-matter. It has to be elaborated and acquired in relative independence from subject-matter, and *then* applied.

Now the body of knowledge which constitutes the subject-matter of the student-teacher must, by the nature of the case, be organized

subject-matter. It is not a miscellaneous heap of separate scraps. Even if (as in the case of history and literature), it be not technically termed "science," it is none the less material which has been subjected to method—has been selected and arranged with reference to controlling intellectual principles. There is, therefore, method in subject-matter itself—method indeed of the highest order which the human mind has yet evolved, scientific method.

It cannot be too strongly emphasized that this scientific method is the method of mind itself.¹ The classifications, interpretations, explanations, and generalizations which make subject-matter a branch of study do not lie externally in facts apart from mind. They reflect the attitudes and workings of mind in its endeavor to bring raw material of experience to a point where it at once satisfies and stimulates the needs of active thought. Such being the case, there is something wrong in the "academic" side of professional training, if by means of it the student does not constantly get object-lessons of the finest type in the kind of mental activity which characterizes mental growth and, hence, the educative process.

It is necessary to recognize the importance for the teacher's equipment of his own habituation to superior types of method of mental operation. The more a teacher in the future is likely to have to do with elementary teaching, the more, rather than the less, necessary is such exercise. Otherwise, the current traditions of elementary work with their tendency to talk and write down to the supposed intellectual level of children, will be likely to continue. Only a teacher thoroughly trained in the higher levels of intellectual method and who thus has constantly in his own mind a sense of what adequate and genuine intellectual activity means, will be likely, in deed, not in mere word, to respect the mental integrity and force of children.

Of course, this conception will be met by the argument that the scientific organization of subject-matter, which constitutes the academic studies of the student-teacher is upon such a radically different basis from that adapted to less mature students that too much pre-occupation with scholarship of an advanced order is likely actually to get in the way of the teacher of children and youth. I do not suppose anybody would contend that teachers really can know more than is good for

¹ PROFESSOR ELLA F. YOUNG'S "Scientific Method in Education" (*University of Chicago Decennial Publications*) is a noteworthy development of this conception, to which I am much indebted.

them, but it may reasonably be argued that continuous study of a specialized sort forms mental habits likely to throw the older student out of sympathy with the type of mental impulses and habits which are found in younger persons.

Right here, however, I think normal schools and teachers' colleges have one of their greatest opportunities—an opportunity not merely as to teachers in training, but also for reforming methods of education in colleges and higher schools having nothing to do with the training of teachers. It is the business of normal schools and collegiate schools of education to present subject-matter in science, in language, in literature and the arts, in such a way that the student both sees and feels that these studies *are* significant embodiments of mental operations. He should be led to realize that they are not products of technical methods, which have been developed for the sake of the specialized branches of knowledge in which they are used, but represent fundamental mental attitudes and operations—that, indeed, particular scientific methods and classifications simply express and illustrate in their most concrete form that of which simple and common modes of thought-activity are capable when they work under satisfactory conditions.

In a word, it is the business of the "academic" instruction of future teachers to carry back subject-matter to its common psychical roots.² In so far as this is accomplished, the gap between the higher and the lower treatment of subject-matter, upon which the argument of the supposed objector depends, ceases to have the force which that argument assigns to it. This does not mean, of course, that exactly the same subject-matter, in the same mode of presentation, is suitable to a student in the elementary or high schools that is appropriate to the normal student. But it does mean that a mind which is habituated to viewing subject-matter from the standpoint of the function of that subject-matter in connection with *mental* responses, attitudes, and methods will be sensitive to *signs of intellectual activity* when exhibited in the child of four, or the youth of sixteen, and will be trained to a spontaneous and unconscious appreciation of the subject-matter which is fit to call out and direct mental activity.

We have here, I think, the explanation of the success of some teachers who violate every law known to and laid down by pedagogical science. They are themselves so full of the spirit of inquiry, so sensi-

² It is hardly necessary to refer to Dr. Harris's continued contention that normal training should give a higher view or synthesis of even the most elementary subjects.

tive to every sign of its presence and absence, that no matter what they do, nor how they do it, they succeed in awakening and inspiring like alert and intense mental activity in those with whom they come in contact.

This is not a plea for the prevalence of these irregular, inchoate methods. But I feel that I may recur to my former remark : if some teachers, by sheer plenitude of knowledge, keep by instinct in touch with the mental activity of their pupils, and accomplish so much without, and even in spite of, principles which are theoretically sound, then there must be in this same scholarship a tremendous resource when it is more consciously used—that is, employed in clear connection with psychological principles.

When I said above that schools for training teachers have here an opportunity to react favorably upon general education, I meant that no instruction in subject-matter (wherever it is given) is adequate if it leaves the student with just acquisition of certain information about external facts and laws, or even a certain facility in the intellectual manipulation of this material. It is the business of our higher schools in all lines, and not simply of our normal schools, to furnish the student with the realization that, after all, it is the human mind, trained to effective control of its natural attitudes, impulses, and responses, that is the significant thing in all science and history and art so far as these are formulated for purposes of study.

The present divorce between scholarship and method is as harmful upon one side as upon the other—as detrimental to the best interests of higher academic instruction as it is to the training of teachers. But the only way in which this divorce can be broken down is by so presenting all subject-matter, for whatever ultimate, practical, or professional purpose, that it shall be apprehended as an objective embodiment of methods of mind in its search for, and transactions with, the truth of things.

Upon the more practical side, this principle requires that, so far as students appropriate new subject-matter (thereby improving their own scholarship and realizing more consciously the nature of method), they should finally proceed to organize this same subject-matter with reference to its use in teaching others. The curriculum of the elementary and the high school constituting the "practice" or "model" school ought to stand in the closest and most organic relation to the instruction in subject-matter which is given by the teachers of the

professional school. If in any given school this is not the case, it is either because in the *training class* subject-matter is presented in an isolated way, instead of as a concrete expression of methods of mind, or else because the *practice school* is dominated by certain conventions and traditions regarding material and the methods of teaching it, and hence is not engaged in work of an adequate educational type.

As a matter of fact, as everybody knows, both of these causes contribute to the present state of things. On the one hand, inherited conditions impel the elementary school to a certain triviality and poverty of subject-matter, calling for mechanical drill, rather than for thought-activity, and the high school to a certain technical mastery of certain conventional culture subjects, taught as independent branches of the same tree of knowledge! On the other hand traditions of the different branches of science (the academic side of subject-matter) tend to subordinate the teaching in the normal school to the attainment of certain facilities, and the acquirement of certain information, both in greater or less isolation from their value as exciting and directing mental power.

The great need is convergence, concentration. Every step taken in the elementary and the high school toward intelligent introduction of more worthy and significant subject-matter, one requiring consequently for its assimilation thinking rather than "drill," must be met by a like advance step in which the mere isolated specialization of collegiate subject-matter is surrendered, and in which there is brought to conscious and interested attention its significance in expression of fundamental modes of mental activity—so fundamental as to be common to both the play of the mind upon the ordinary material of everyday experience and to the systematized material of the sciences.

III. As already suggested, this point requires that training students be exercised in making the connections between the course of study of the practice or model school, and the wider horizons of learning coming within their ken. But it is consecutive and systematic exercise in the consideration of the subject-matter of the elementary and high schools that is needed. The habit of making isolated and independent lesson plans for a few days' or weeks' instruction in a separate grade here or there not only does not answer this purpose, but is likely to be distinctly detrimental. Everything should be discouraged which tends to put the student in the attitude of snatching at the subject-matter which he is acquiring in order to see if by some hook or crook it may

be made immediately available for a lesson in this or that grade. What is needed is the habit of viewing the entire curriculum as a continuous growth, reflecting the growth of mind itself. This in turn demands, so far as I can see, consecutive and longitudinal consideration of the curriculum of the elementary and high school rather than a cross-sectional view of it. The student should be led to see that the same subject-matter in geography, nature-study, or art develops not merely day to day in a given grade, but from year to year throughout the entire movement of the school; and he should realize this before he gets much encouragement in trying to adapt subject-matter in lesson plans for this or that isolated grade.

C. If we attempt to gather together the points which have been brought out, we should have a view of practice work something like the following—though I am afraid even this formulates a scheme with more appearance of rigidity than is desirable:

At first, the practice school would be used mainly for purposes of observation. This observation, moreover, would not be for the sake of seeing how good teachers teach, or for getting "points" which may be employed in one's own teaching, but to get material for psychological observation and reflection, and some conception of the educational movement of the school as a whole.

Secondly, there would then be more intimate introduction to the lives of the children and the work of the school through the use as assistants of such students as had already got psychological insight and a good working acquaintance with educational problems. Students at this stage would not undertake much direct teaching, but would make themselves useful in helping the regular class instructor. There are multitudes of ways in which such help can be given and be of real help—that is, of use to the school, to the children, and not merely of putative value to the training student.¹ Special attention to backward children, to children who have been out of school, assisting in the care of material, in forms of hand-work, suggest some of the avenues of approach.

This kind of practical experience enables, in the third place, the future teacher to make the transition from his more psychological and theoretical insight to the observation of the more technical points of

¹This question of some real need in the practice school itself for the work done is very important in its moral influence and in assimilating the conditions of "practice work" to those of real teaching.

class teaching and management. The informality, gradualness, and familiarity of the earlier contact tend to store the mind with material which is unconsciously assimilated and organized, and thus supplies a background for work involving greater responsibility.

As a counterpart of this work in assisting, such students might well at the same time be employed in the selection and arrangement of subject-matter, as indicated in the previous discussion. Such organization would at the outset have reference to at least a group of grades, emphasizing continuous and consecutive growth. Later it might, without danger of undue narrowness, concern itself with finding supplementary materials and problems bearing upon the work in which the student is giving assistance; might elaborate material which could be used to carry the work still farther, if it were desirable; or, in case of the more advanced students, to build up a scheme of possible alternative subjects for lessons and studies.

Fourthly, as fast as students are prepared through their work of assisting for more responsible work, they could be given actual teaching to do. Upon the basis that the previous preparation has been adequate in subject-matter, in educational theory, and in the kind of observation and practice already discussed, such practice teachers should be given the maximum amount of liberty possible. They should not be too closely supervised, nor too minutely and immediately criticised upon either the matter or the method of their teaching. (Students should be given to understand that they not only are *permitted* to act upon their own intellectual initiative, but that they are *expected* to do so, and that their ability to take hold of situations for themselves would be a more important factor in judging them than their following any particular set method or scheme.)

Of course, there should be critical discussion with persons more expert of the work done, and of the educational results obtained. But sufficient time should be permitted to allow the practice-teacher to recover from the shocks incident to the newness of the situation, and also to get enough experience to make him capable of seeing the *fundamental* bearings of criticism upon work done. Moreover, the work of the expert or supervisor should be directed to getting the student to judge his own work critically, to find out for himself in what respects he has succeeded and in what failed, and to find the probable reasons for both failure and success, rather than to criticising him too definitely and specifically upon special features of his work.

(It ought to go without saying (unfortunately, it does not in all cases) that criticism should be directed to making the professional student thoughtful about his work in the light of principles, rather than to induce in him a recognition that certain special methods are good, and certain other special methods bad.) At all events, no greater travesty of real intellectual criticism can be given than to set a student to teaching a brief number of lessons, have him under inspection in practically all the time of every lesson, and then criticise him almost, if not quite, at the very end of each lesson, upon the particular way in which that particular lesson has been taught, pointing out elements of failure and of success. Such methods of criticism may be adapted to giving a training-teacher command of some of the knacks and tools of the trade, but are not calculated to develop a thoughtful and independent teacher.

Moreover, while such teaching (as already indicated) should be extensive or continuous enough to give the student time to become at home and to get a body of funded experience, it ought to be intensive in purpose rather than spread out miscellaneously. It is much more important for the teacher to assume responsibility for the consecutive development of some one topic, to get a feeling for the movement of that subject, than it is to teach a certain number (necessarily smaller in range) of lessons in a larger number of subjects. What we want, in other words, is not so much technical skill, as a realizing sense in the teacher of what the educational development of a subject means, and, in some typical case, command of a method of control, which will then serve as a standard for self-judgment in other cases.

Fifthly, if the practical conditions permit—if, that is to say, the time of the training course is sufficiently long, if the practice schools are sufficiently large to furnish the required number of children, and to afford actual demand for the work to be done—students who have gone through the stages already referred to should be ready for work of the distinctly apprenticeship type.

Nothing that I have said heretofore is to be understood as ruling out practice-teaching which is designed to give an individual mastery of the actual technique of teaching and management, provided school conditions permit it in reality and not merely in external form—provided, that is, the student has gone through a training in educational theory and history, in subject-matter, in observation, and in practice work of the laboratory type, before entering upon the latter. The

teacher must acquire his technique some time or other; and if conditions are favorable, there are some advantages in having this acquisition take place in cadetting or in something of that kind. By means of this probation, persons who are unfit for teaching may be detected and eliminated more quickly than might otherwise be the case and before their cases have become institutionalized.

Even in this distinctly apprenticeship stage, however, it is still important that the student should be given as much responsibility and initiative as he is capable of taking, and hence that supervision should not be too unremitting and intimate, and criticism not at too short range or too detailed. The advantage of this intermediate probationary period does not reside in the fact that thereby supervisory officers may turn out teachers who will perpetuate their own notions and methods, but in the inspiration and enlightenment that come through prolonged contact with mature and sympathetic persons. If the conditions in the public schools were just what they ought to be, if all superintendents and principals had the knowledge and the wisdom which they should have, and if they had time and opportunity to utilize their knowledge and their wisdom in connection with the development of the younger teachers who come to them, the value of this apprenticeship period would be reduced, I think, very largely to its serving to catch in time and to exclude persons unfitted for teaching.

In conclusion, I may say that I do not believe that the principles presented in this paper call for anything utopian. The present movement in normal schools for improvement of range and quality of subject-matter is steady and irresistible. All the better classes of normal schools are already, in effect, what are termed "junior colleges." That is, they give two years' work which is almost, and in many cases quite, of regular college grade. More and more, their instructors are persons who have had the same kind of scholarly training that is expected of teachers in colleges. Many of these institutions are already of higher grade than this; and the next decade will certainly see a marked tendency on the part of many normal schools to claim the right to give regular collegiate bachelor degrees.

The type of scholarship contemplated in this paper is thus practically assured for the near future. If two other factors co-operate with this, there is no reason why the conception of relation of theory and practice here presented should not be carried out. The second necessary factor is that the elementary and high schools, which serve as

schools of observation and practice, should represent an advanced type of education properly corresponding to the instruction in academic subject-matter and in educational theory given to the training classes. The third necessity is that work in psychology and educational theory make concrete and vital the connection between the normal instruction in subject-matter and the work of the elementary and high schools.

If it should prove impracticable to realize the conception herein set forth, it will not be, I think, because of any impossibility resident in the outward conditions, but because those in authority, both within and without the schools, believe that the true function of training schools is just to meet the needs of which people are already conscious. In this case, of course, training schools will be conducted simply with reference to perpetuating current types of educational practice, with simply incidental improvement in details.

The underlying assumption of this paper is, accordingly, that training schools for teachers do not perform their full duty in accepting and conforming to present educational standards, but that educational leadership is an indispensable part of their office. The thing needful is improvement of education, not simply by turning out teachers who can do better the things that are now necessary to do, but rather by changing the conception of what constitutes education.

RELATION OF THEORY TO PRACTICE.

SARAH C. BROOKS,
Baltimore, Md.

A LATCH key was given me recently, with instructions as to its **use**, by the lady of the house. As she inserted the key and opened the door, she said: "I don't know whether you can use this key, for it doesn't always behave. If you push it in too far, or press upon it with too much force, it will not unlock the door."

While accepting the doubtful treasure with thanks, I humbly made note of the cautions given, resolving to exercise the greatest care in its use. When that closed door stood between me and lunch, a few hours later, and I essayed to enter the house, my first efforts failed, because in my efforts to profit by instructions I neither inserted the key the required distance nor turned it with sufficient power. My preconceived notions were lacking when put to the test. Repeated experiments gave the proper adjustment at last; but with the experiments came a decided modification of my estimate of instructions given. Frequent use has made me familiar with all the aggravating peculiarities of the key, and compelled me to return to the first theory of adjustment. If turning it over to a stranger to use, I should probably give the same directions that were given me.

Now, what is the difference between the theory as held in the **first** case and in the **second**? While identical in form, the **first** was poor from lack of judgment in interpreting and applying; the **second** is enriched by experience. Between the two lie a period of doubt and uncertainty as to the value of the instruction given, and a return of confidence. The one was adopted; the other has been proved. The one was the formulation of another's experience; the latter is my own through experience.

The incident, while of no value in itself, affords a typical illustration of the relation of theory to practice in ordinary life. However efficient instruction may be, the learner is almost certain to go wrong in the application from lack of ability perfectly to interpret and apply; and much practice is necessary to bring about the proper adjustment. The more delicate the material and the nicer the adjustment, the **more** practice is required before skill is attained.

The key and the lock afford an illustration of the simplest form of problems, because, being mechanical contrivances and subject to fixed laws, they are more or less constant in action, even when imperfectly adjusted. Life is full of problems of a much more complicated character, for humanity is by no means a constant quantity, subject to fixed laws. Among these complicated problems is the preparation of students for the profession of teaching.

If this problem were as simple as that of the key and the lock, the practice of Dotheboys Hall would answer every purpose, and Dickens would have lived in vain. To spell "horse" and then proceed to curry him covered the theoretical and the practical in the process of becoming familiar with this branch of zoölogy at Dotheboys Hall. If nothing were necessary but a slight knowledge of the subject-matter, the incipient teacher would need only a spelling acquaintance with the subjects to be taught, and then proceed to teach. Dotheboys Hall has still its disciples; for few days pass without some query as to the value of training schools, or some suggestion, even from teachers, of the supreme and overmastering importance of practice in the preparation for teaching. Yet among intelligent students of the problem of teaching there can be no question of the immense importance of the theory.

The point of danger to the student teacher is in the inadequate time allowed for adjustment of practice and theory. There should be leisure, during the term of practice or afterward, for comparison and explanation of experiences, and a fresh inspection of general principles both of mental development and of pedagogy. If the student is turned out into the city schools before this adjustment takes place, the result is a distinct loss in two directions: first, to the schools in efficient work; and, second, to the young teacher in the time spent in helpless floundering in what too frequently proves to be a veritable slough of despond. It may be years before a professional attitude toward the work is finally attained; and many drop out of the ranks because of these early discouragements. Mark Twain says that his first lesson in piloting a boat was received on the way from New Orleans to St. Louis, and that he took the greatest pains to impress upon his mind the various sand bars, shifting currents, appearances of islands, bends of shore, and what not; but when the boat was headed down the stream everything presented such a different aspect that he had to learn the lesson the other way around. The young teacher's experience is somewhat similar to that of the gifted pilot. Fortunate for her if both

.lessons are learned while she is still within the training school, where perplexities and doubts may be cleared away, and apparent contradictions are reconciled by means of sympathetic explanation and exposition.

Omitting the question of natural aptitude, the importance and elusiveness of which none will deny, it may be well to inquire into the causes which complicate the training-school problem, and to discuss ways and means of securing the most satisfactory results under the circumstances.

The first element of complication, and the element upon which all other things depend, is that of time devoted to training. Accepting students on the scholarship basis of a high-school course, the time varies, according to schools and localities, from one to two years, with a large balance on the side of a one-year course. Sometimes a two-year course includes the last year of the high school, during which time certain professional studies are pursued, or certain reviews given in preparation for the regular training-school year.

Now, if the fourth year of the high school be devoted to studies which shall prepare certain students for the training school, it is worth while to consider which branches will prove most helpful when the professional work really begins.

Proceeding by elimination, first of all, psychology and the history of education are basic professional studies of such value that no teacher of theory would be willing to have them divorced from pedagogy. The laws of presentation are ordained by the laws of mental development, and must be present at the same time in the consciousness of the student. A knowledge of the progress of educational theory and the growth and development of the course of study should be presented at the same time with, or under the same conditions as, those under which the theories of presentation are given. Psychology especially calls for an attitude of mind not at all compatible with the manifold interests, distractions, and pleasing excitements incidental to graduation year in the high school. Psychology calls for reflection, for subjective and objective study and experiment, and these require a professional atmosphere in which to thrive.

Secondly, teachers are required, more and more, to be thinkers, to reserve judgment, and encourage pupils to do so until testimony accumulates in any given case—to experiment, to observe. Nature-study is an accepted topic in our present course of study, and the teacher must have first-hand acquaintance with nature before she can present

the various phases of the subject to children. For these reasons biology is one of the most important subjects for the high-school student looking toward a professional career. The free use of a laboratory in the study of any science is a modern necessity, not only for the sake of the student, but, looking to the future, if the student hopes to become a teacher, for the sake of enlightened methods of presentation to children.

As a means of saving time in the professional year, and also of refreshing memory in preparation for pedagogical treatment, there should be a review of the elementary branches and physiology, if the latter has not been previously presented in the high-school course. A general survey of subjects at this time which were necessarily presented piecemeal through the grades, does much to unify the topics of the various subjects. This, of course, would be just as true if the reviews should be given in the training school as in the high school; but, as we shall see later, the training-school program is crowded even with the omission of elementary reviews.

Therefore, from my point of view, those subjects to be presented during the fourth year of the high school most helpful to the training are biology, physiology, and a review of the elementary branches. I would not be put upon record as limiting science to biology and physiology, for the attitude of mind induced by a right study of science is of untold value to the teacher; and consequently there is nothing more desirable than a scientific training, if I may use the term in that sense. Both physics and chemistry, studied upon the laboratory plan, are exceedingly valuable to the teacher. English literature, the languages, mathematics, are all, likewise, essential, but presupposed in a regular high-school course. I am not so sure, either, of the value of elective courses in the high school, if the young students themselves are to be the judges; for it not infrequently happens that one is led to regret the loss of the training and preparation of certain life-experiences incidental to the study of subjects excluded, by immature judgment, from the course to be pursued. But this is far afield; considering the training-school period proper, the disposition of time varies as greatly as does the amount of time given to the course in various localities. In some cases one year of consecutive work is devoted to theory and five months to practice in the ward schools under a director of practice. In other cases, after the expiration of the term of training, including practice under supervision in the practice schools, the students are required to teach four months in the ward schools without the assistance and criticism of a critic-teacher.

Still other schools, notably normal, as distinguished from the ordinary city training school, devote two full years to the course, receiving students upon a scholarship basis of high-school graduation. These schools vary in time and amount of practice afforded each student. Some devote the first year entirely to theory and observation, and the second year largely to practice. That is, each student teaches at least one hour a day, giving attention to but one subject at a time, and presenting that subject to but one grade at a time. When the term of practice, which may be five or ten weeks, expires, the student may present the same subject to another grade, or present a different subject, as the case may seem to require. At least one other normal school devotes a portion of each day of the two-year term to practice. The practice work is under the supervision of certain members of the faculty, and the plan provides that new students shall act first as assistants to older or more experienced, and later be given charge of rooms for a specified period each day. The new and inexperienced students are thus strengthened and assured by observing and assisting the work of one more experienced.

Other training schools having a one-year course, from lack of facilities, size of classes, limit of time, or other reasons, divide classes into sections, each of which, in turn, is sent to practice under expert direction. In some cases the practice is given in various ward schools in which are provided classes under the care of a critic-teacher. Sometimes the term of practice is completed in a central building housing the two branches of theory and practice. Again, part of the students practice in the central building, and part in the ward schools. This plan is due, perhaps, to lack of facilities in the central building, or it may be from the desire to scatter classes which are under the care of students, and so distribute the discomforts due to fault-finding on the part of parents. The term of practice varies from eight to twelve weeks or more, according to circumstances. For economic reasons, this division frequently necessitates sending students to practice who have had no training in theory, unless arrangements are made for two entrance periods yearly to the training school.

The next complication in the problem of training is in connection with the studies pursued by students during the time at their disposal. These studies have been suggested, in part at least, under the high-school phase of scholastic preparation for the training school. First in the list stands psychology, with both subjective and objective studies

of children. History of education, pedagogy, and school management follow in the order of importance. Pedagogy is a title which includes a number of subjects. In its first aspect, of general method, it is intimately associated with psychology. In its second aspect of special method, it deals more directly with the actual presentation of subjects in the schoolroom, and gives opportunity for much illustrative teaching. It includes nature-study, children's literature, drawing, and music, as well as the elementary branches. Some of the richest and most practical experiences of the professional term are the direct outcome of special method.

I have not found the subject of enthusiasm in any text-book which can be placed in the hands of students, but it is a fact beyond dispute that enthusiasm is one of the most important subjects considered. Like charity, one may have all the other qualities and yet, lacking enthusiasm, is nothing in the educational world. It does not appear on any program or in any course of study, yet it not only is an essential qualification of the teacher, but requires time for cultivation.

What is the least time that can be devoted with profit to these studies, provided there is one year given to professional training? What a pity, too, that in school matters, matters pertaining to the training of that which is imperishable, we must always ask for the least rather than for what is adequate!

A year is none too much for theoretical preparation; but by keeping up steam and filling the program with recitations, instead of providing periods of alternating rest and study each day, or periods of observation of grade work, the ground can be covered in seven months. In the hurry to accomplish a necessary amount of work in a given time we frequently lose sight of the educational importance of a little leisure, and yet it is one of the essential conditions of perfect comprehension. Seven months devoted to theory leaves an aggregate of three months for practice; and the conditions under which the practice is given have much to do with the degree of benefit accruing to the individual student. It is, therefore, exceedingly important that the practice school be so organized and situated as to afford both teachers and students the best possible conditions for work. In order to know what these conditions are, it is necessary to know the specific needs of the student.

First, in connection with a study of the theory of presentation, and later when practice begins, there is urgent need of observation of the

work of a skilled teacher. The "what" and the "how," however well presented theoretically, need the anchor of practical illustration with pupils of a given degree of advancement. Then, when students begin to teach they need to observe the work of a skilful teacher who furnishes a model by which they are enabled, in a measure, to "true" their own imperfect efforts.

Secondly, the students need direct daily contact with children while studying the laws of mental development and of the presentation of subject-matter. The period from childhood to maturity is so full and rich of experiences, so marvelous with both physical and mental development, so roseate with dreams, hopes, and aspirations, that the student of eighteen or twenty is completely out of touch, ordinarily, with children. Life has been so strenuous as to afford no time for intimate associations with the outgrown self of childhood. Consequently, the incipient teacher must now be encouraged to renew acquaintance with the past self and to observe children daily. Intelligent sympathy with the needs and tendencies of children is one of the first qualifications of the teacher; and the parent, for that matter.

Thirdly, there must be opportunity for actual practice in teaching and in the care of a room; and this work should be done under the most encouraging conditions possible to the student—necessarily subject to criticism from those who have the supervision of her work; for this is the proving-ground of the teacher; she is timid and doubtful of her own powers, as a usual thing. She is also subject to criticism of a less intelligent character from the pupils, who have been fed from the pedagogical spoon until they have grown critical even of the way it is presented, not to mention the quality of the food it contains. It is therefore important that an air of dignity and a feeling of confidence be established first of all, for the sake of both student-teacher and pupils. The slightest neglect of these precautions is unfortunate in its effects, however trivial they may seem.

The term of practice should furnish as much variety of teaching experience as possible, and also opportunity to learn something of the details of managing a room. The management of a room calls for many more qualifications than that of successfully conducting a recitation, important as we acknowledge that to be. The order of exercises for the day, change of classes, seat work, temperature of the room, discipline, make constant and insistent demands upon the teacher's time and judgment, and every detail must be settled before we pronounce the aspirant ready for regular work in the city schools.

It is therefore important that the term of practice include two phases: first, variety of teaching experience, and, second, concentration of energy in the mastery of the details in connection with the management of a room and the daily preparation of all lessons. In a period of twelve weeks, five weeks may be given to the first phase and seven to the second, apportioning the time in accordance with the demands made upon the student-teacher by the second phase. But even under the best of conditions a twelve-week period of practice is not long enough to meet the various needs of the student-teacher.

Now, in actual practice in the various training schools of the country, so far as I have been able to learn, either one phase or the other is made prominent; and in many cases one or other phase occupies the entire period. The neglect of either causes a distinct loss to the young teacher, although insuring a greater amount of proficiency in the other direction.

Take the case of a school whose course covers two years. Suppose the practice to cover a period of forty weeks, the student teaching one period daily. This would afford opportunity of presenting one subject to any one grade for another period of five weeks. In this way one subject may be presented to all grades in the practice school; or, during the same period, different subjects may be presented to the various grades, the plan varying according to conditions. The value of such an arrangement as this is apparent, acquainting the student with the various divisions of the subject-matter, and the necessary modifications in presenting these to the different grades. Unless provision is made, however, for the practice in school management, the efficiency of the plan is lessened somewhat.

Where students spend three, or even five, months quietly in one room, teaching, observing, and managing the various requirements of the day, in any one grade, they leave the practice school at the close of the period proficient in the work of that grade, and more or less settled as to convictions, according to the circumstances under which the practice was conducted. If these students can be appointed to corresponding grades in the ward schools, their experience will prove beneficial to themselves and to the city. If, however, the opposite course is pursued, the results are disastrous, because the young teacher lacks perspective. It is vain to urge that the teaching spirit is the same in all grades. That water has power to float a human body is of no particular value as a physical fact to a drowning man. Give a student

practice for three or five months in the first grade, and then appoint her to the third grade ; or give practice in the fifth, and then appoint to the first ; and you behold, usually, the floundering of a drowning man. Results are disastrous, not only so far as the work is concerned, but in a far sadder way, to the young teacher herself, in unsettling her mind regarding the value of previous instruction and experience.

Any real or apparent disparity between the principles deduced in the study of psychology and pedagogy, and their application in practice, or any lack of harmony between the departments of theory and practice, is unfortunate for the student-teacher who has little power of adjustment from lack of experience. It has much the same effect as that produced in the primary school when the home interests are ignored or slighted. A soul cannot develop steadily and perfectly without a harmonious adjustment of relations. For this reason, it is incumbent on the two departments to work together for the attainment of the one end in view. In all other matters admitting of a variety of opinion the utmost care and the utmost consideration should be exercised.

The final need of the student-teacher is that of participation in critic meetings—meetings in which there is both constructive and destructive criticism. To be of the greatest benefit, the student should meet here, not only with practice teachers, but with teachers of theory as well. The most fruitful source of discussion in these meetings, of course, is the illustrative lesson, in the process of which it has been the purpose of the teacher to show the application of some principle of pedagogy. All parties participating in the discussion after the lesson is concluded, the student begins to feel part of a whole body of seekers after truth, be that body great or small. She also sees the real meaning of criticism as applying to her own efforts. If what she does is in accordance with general principles, her work is commended ; if not, someone is ready to point out the errors and suggest a remedy, as far as possible. If she is brainy and capable, she responds to the stimulus and improves in her teaching. These meetings react in a wholesome manner upon the training teachers also. Personally I know of no greater stimulus to teaching, nor of a more wholesome check to idiosyncrasies of every kind, than this form of critic meeting.

We have determined the needs of the student-teacher, in her term of practice, to be observation of model lessons; direct contact with children for purposes of study and of reviving past states of mind ; and actual practice in teaching which shall give variety of experience

and at the same time a knowledge of the management of some one grade or class. We have also decided that a unit of experience, so far as theory and practice are concerned, is most desirable for the student. Our next and last question concerns the manner in which all these needs may be met. What disposition shall be made of the practice? Shall it be distributed among the various ward schools under competent critic-teachers, or shall both the theory and the practice be in one building.

Distributing the practice among the various ward schools has some distinct advantages. Among these are a greater variety of working models, as afforded by the examples of the critic-teachers of the various localities, who have little opportunity to compare work, and are comparatively free from any dominating influence that might be felt if all were collected in one building and under one head.

By this arrangement, also, the training school has numerous points of contact with the city schools, thereby affording more opportunities for sharing with the city teachers whatever good may accrue to the training school from the combined study and efforts of its various members.

With only two or four practice rooms in any one locality, the discomfort of complaints of parents on account of the supposed unsatisfactory work done in critic classes is reduced to a minimum. This consideration is scarcely worth noting; for, as every experienced person knows, these classes compare most favorably, in the long run, with those taught by regular teachers. The critic-teacher, who is always selected for superior qualifications, sees to it that children do not lose in the change of student-teachers, or in the event of unsatisfactory work by the student-teachers.

The distinct disadvantages to distributed practice are these:

Isolation does away with that indefinable, but necessary, something we call a professional atmosphere, which is possible only where numbers are working together, and are in such accord with each other that unity of purpose and enthusiasm are everywhere and at all times in evidence. It is as necessary to the incipient teacher as sunshine and moisture are to the incipient tree.

Observation of grade work, except in the case of the class immediately under her charge, ceases with the term of theory. She is then confined to one set of experiences until the expiration of her period of practice. She has no opportunity to practice in the different grades,

and consequently must lose the good accruing from a broad experience in teaching. In other words, she will know but one grade or class.

Critic meetings whose distinctive feature is the illustrative lesson are an impossibility. The classes are so widely dispersed that meetings must be conducted after school, when children are no longer in the building; or, if held for the meeting, are subject to unnatural conditions, which place both themselves and the teacher at a decided disadvantage. Teachers and students are wearied with the day's work, and enthusiasm is thereby reduced to the minimum.

It may also be necessary, for reasons incidental to organization, while a mutual understanding is being established and the course of study considered, that student- and critic-teachers have separate meetings. Here the separation sometimes reacts in misunderstanding of suggestions and criticisms given when the students assemble for critic work; for it is not often possible for the critic-teacher to attend both meetings.

Supervision is rendered difficult and unsatisfactory, the more so as the schools are widely separated. While it is both the duty and the pleasure of principal and assistants to visit the critic classes, many duties make inroads upon time; and the various customs regarding general exercises, sewing, manual training, teachers' meetings, and the like, in spite of the fact that arrangements are made to prevent conflict, render a portion of the actual visits abortive. A consensus of opinion is always possible and profitable, but no one visitor feels that the results personally are in any sense commensurate with the effort put forth and the energy expended. Where it is possible to have the supervision in the care of one person, results are more satisfactory.

Last of all, there is no adequate opportunity to work out a course of study where classes are isolated. The necessity of a separate course of study for the practice school is in some cases essential to a unit of instruction for the student-teachers. Under any circumstances it must have points of contact with that of the city schools, but may vary in some essential features. Suppose a third grade to be in the hands of critic- and student-teachers. Previous to this period the regular course of study has been followed. Succeeding work will come from the same source. What foundation and what perspective has any departure in this present year from established customs? A brave effort may be put forth by all parties concerned; but here again results are not commensurate with the time and energy expended.

Where schools of both theory and practice are housed in one building there is always the danger of a deadly sameness in ideals and of practice; and danger, too, of self-satisfaction. Self-satisfaction means mental inertia, and nothing is a greater menace to progress. This may be obviated in great measure by the active co-operation of all members of the faculty. Study and independent thinking, with good-natured freedom of expression, will do wonders in keeping the spirit of originality alive; and these activities are easily encouraged.

The question of dissatisfaction of parents is met in every city supporting a training school for teachers; and, while unpleasant, it is not unanswerable nor unreconcilable.

The unified training school certainly does afford fewer points of contact with the city schools, but it may, by the very fact of its unified life, have greater richness of results and of suggestion to present to those who visit the building.

The distinct advantages of the unified school, on the other hand, are as follows:

It affords frequent and varied opportunities for observation of expert teaching.

Students are placed in direct contact with children of the various grades before beginning to teach.

They have opportunity to practice in the different grades, thus gaining variety of experience in presenting work to children of different degrees of advancement.

They have the benefit of participating in the discussions based upon illustrative lessons, and of all other phases of discussion incidental to critic meetings.

It is possible in the one-building plan to create an atmosphere conducive to growth and to unity of purpose. This condition is most essential to the right development of the young teacher.

For the same reason, a course of study for practice schools is possible from the fact that it has both foundation and perspective.

If, therefore, as I believe, the foregoing conditions are necessary in order that the best possible results may accrue to the student-teacher in her inadequate term of practice, a one-building plan is essential, under ordinary circumstances, to the harmonious and effective workings of the schools of theory and practice.

THEORY AND PRACTICE AT TEACHERS COLLEGE, COLUMBIA UNIVERSITY.

COMPLEX NATURE OF TEACHERS COLLEGE.

THE extremely complex nature of Teachers College renders any discussion of the above theme peculiarly difficult. Students may enter the college as freshmen, specialize in Education the last two years of a four-year course, and receive a B.S. degree in Education. They may then continue their studies three years longer until the degree of Ph.D. in Education is received.

The undergraduate two-year professional courses prepare students for teaching in the kindergarten, the elementary school, or the secondary school, or for teaching domestic art, domestic science, fine arts, manual training, music, or physical education, in both schools. The graduate courses allow more advanced work in any of these lines, and for the work of supervision and administration.

Thus a student may spend seven years at the college in preparation for educational work, five of which are devoted to professional study; or, in accordance with his previous training and the special line which he has chosen, he may spend only one year there. It is evident from these facts that it is very difficult to make statements that apply to all students completing a course, and to all grades of work.

COURSES IN EDUCATION VERSUS ACADEMIC OR SUBJECT-MATTER COURSES.

In the year 1902-3 there were 146 separate courses offered in Teachers College, varying from 1 to 6 hours per week, and extending over a period of either a half or a whole academic year. Fifty per cent. of all the work offered dealt with Education proper, in distinction from academic courses, although the subject-matter of nearly all of the latter was distinctly professional, as, for instance, courses on Textiles and Foods, for prospective teachers in domestic art and domestic science.

Less than half of the hours taken by students, however, were in Education. In fact, on the average, a student taking 16 hours of instruction per week chose 6 of them in Education proper and 10 in subject-matter courses. This fact shows conclusively the prevalent

conviction in the college, that knowledge of subject-matter is at least not inferior to a knowledge of method and of other educational theory in the training of teachers. And this was true in spite of the fact that of the 729 students in residence in 1902-3, 230 were college graduates, 107 had had a partial college course, and 181 were normal-, training-, or technical-school graduates, before entering Teachers College.

In addition, the amount of time spent in study per each unit of credit was probably somewhat greater in the subject-matter than in the education courses. Returns from 229 students giving their estimate of their amount of study show the average amount per each hour of credit to be 2.16 hours, the average for each hour of credit in subject-matter courses to be 2.37 hours, and that for each hour of credit in Education courses to be 1.87 hours. This may be misleading, because the time spent in practice-teaching and other practical work can with difficulty be estimated, since it usually consumes a large amount of time for only a few weeks, and it is very probable that most students omitted entirely this item from consideration. Yet these figures approximate the facts, at any rate.

DIFFERENCE BETWEEN THE ACADEMIC WORK OF TEACHERS COLLEGE AND THAT OF NON-PROFESSIONAL COLLEGES, LIKE COLUMBIA AND BARNARD.

i. Teachers College offers 146 courses, aggregating 328 hours, an "hour" meaning one hour a week for one year. There are, besides these, four courses (Botany 11, 13, 17, 28) given in connection with other institutions.

Of the 146 courses, 74 (50 per cent. of the total, aggregating 164 hours, also 50 per cent. of the total) are purely educational, although in the case of Kindergarten courses, Music 10, 11, Physical Education 12, 14, and Physical Science 1, 2, they are not called courses in Education.

Of the nominally academic courses a surprisingly large number are professional in fact, and are not given in non-professional colleges like Barnard and Columbia. There are 58 of these courses (81 per cent. of the nominally academic courses), and they aggregate 131 hours (81 per cent. of the number in the nominally academic courses, and 40 per cent. of the total number of hours).

The following are the courses nominally academic, but in fact professional :

Biblical Literature 1 (2 hours), taken by those who are preparing for Bible teaching.

Domestic Art 10, 12, 14, 15, 16, 17 (14 hours), taken by those who are preparing to teach domestic art.

Domestic Science 10, 11, 12, 13, 14, 15, 51 (18 hours), taken by those who are preparing to teach domestic science.

Hospital Economics 10, 12, (3 hours), taken by those who are preparing to train nurses.

English 10 (1 hour), "Folk Story," taken by elementary teachers for use with children.

Fine Arts 1, 2, 3, 4, 10, 11, 12, 13, 15, 16, 18, 19, 22, 23 (24 hours), taken by those who are preparing to teach art.

Geography 1, 2, 10 (7 hours), taken by those preparing as elementary teachers, or as special teachers of geography.

German 10 (2 hours), "Reading Educational German;" offered, as its name suggests, for the use of teachers only.

Greek 51 and *Latin* 51 (4 hours), reading courses for high-school teachers.

Manual Training 1, 10, 11, 13, 15, 17, 19, 20, 21, 23, 24, 25 (38 hours), taken by those who are preparing to teach the subject.

Mathematics 51 (2 hours), a course in the history of the subject, designed especially for high-school teachers.

Music 2, 3, 4, 12, 14 (9 hours), taken by those who are preparing to teach music in the schools; the same might well be said of music 1, included below in the purely academic list.

Nature Study 10, 12 (4 hours), taken by elementary teachers.

Physical Science 51 (2 hours), a course in the history of the subject, designed especially for high-school teachers.

While occasionally some of these courses—as, for example, Geography 10, or some of the courses in Music or the Fine Arts—are duplicated in name in some non-professional college like Columbia or Barnard, this is exceptional, and even in that case, the aims of the courses being radically different, there is only a nominal duplication. Take, for example, a subject like Geography 1. While courses in General Geography, arranged to fit one to become an investigator in this line, and given with only the scientific end in view, are offered in academic colleges, and are excellent in their results, these courses would need to be materially modified to give the best academic preparation for a teacher.

2. There are 14 purely academic courses, that is, courses not pertaining to teaching (10 per cent. of the total), aggregating 33 hours (10 per cent. of the total), offered in Teachers College. These are as follows:

French A and 1, German A and 2, History A, and Mathematics A—all offered for economical reasons, there being sufficient students to fill one or more sections of each. There are also *History 2* and *10*, demanded by the number of teachers wishing these courses for high-school work; *Music 1*, a preliminary for the teachers' courses in music, and demanded for all kindergarten teachers; and the courses in *Physical Education*, which are so manifestly professional that, although offered in non-professional colleges, they must be given here.

It will, therefore, be seen that the only real duplication of work with Columbia and Barnard Colleges is necessitated by the size of the sections, and is as follows:

<i>French A and 1 (6 hours).</i>	<i>History A and 2 (6 hours).</i>
<i>German A and 2 (6 hours).</i>	<i>Mathematics A (3 hours).</i>

This is a total of 7 courses, 21 hours, or 5 per cent. of the total number of courses offered in Teachers College, and 6 per cent. of the total number of hours. It is evident, too, that the method of instruction in these courses is, by the nature of the aims of the students involved, quite different from that in non-professional colleges, although this point can hardly be made clear to the instructors to whom these classes are often left in such institutions.

Nevertheless, these subjects in group 2 might with no serious harm be handed over to Columbia and Barnard Colleges, if it were not for the economical question involved. If the university should cease to require subjects like Mathematics A, German A, and History A, the problem would be to quite an extent solved by the diminution in the size of classes.

3. The following is a summary of the courses offered at Teachers College:

	COURSES		HOURS	
	Number	Percentage	Number	Percentage
Purely educational.....	74	50	164	50
Education in fact, though not in name ...	58	40	131	40
Total.....	132	90	295	90
Purely academic, though not duplicating Columbia or Barnard Colleges	7	5	12	4
Duplicating such work.....	7	5	21	6
Grand total.....	146	100	328	100

It is evident that the above-outlined policy of Teachers College in regard to subject-matter courses calls into question the special fitness of the academic subjects in the customary college for those persons who are expecting to teach.

NATURE OF GENERAL AND SPECIAL COURSES IN EDUCATION—THEIR RELATION TO EACH OTHER AND TO PRACTICE.

In the organization of Teachers Colleges a number of courses bearing on the general problems of education are provided, as well as special courses relating to the theory and practice of teaching in each of the separate departments represented.

The nature of the general courses is twofold: first, a number of courses that deal with the basic facts of child-life, fundamental educational principles and leading points in methods of teaching that are considered as essential elements in the work of all undergraduate students; and, secondly, a larger number of courses that consider more advanced problems of the educational philosophy, child-study, supervision, and school administration, and which are in general intended for senior and graduate work.

In the first group fall courses in the Elements of Psychology, Educational Psychology, the History and Principles of Education, and in General Method and Practice-Teaching, although the latter is a required course only for the students preparing for general teaching in the elementary school.

In the second group are courses in Educational Problems, Modern Educational Theory, School Administration, Child-Study, Genetic Psychology, Supervision, Critic Work and Experimental Teaching, and general courses on Secondary Education. In addition to these, seven "practica" and six seminar courses are offered for further graduate study. These latter courses call for research work and intensive study on special phases of general problems, and are open only to graduate students.

In the first group the course in the Elements of Psychology deals with the fundamental facts of mental life. While aiming at breadth and thoroughness, the needs of the prospective teacher are given prominence through the selection of topics of special pertinence, and by the use of illustrations from school life whenever possible.

The course in Educational Psychology aims to develop in students the power to apply the facts of psychology to the problems of teaching. Special study is made of the meaning of apperception, the problem of

attention, the relation of memory to knowing, the part played by imagery, the emotions and interests in child-life, the importance of habit, and the place of suggestion in teaching.

As a part of the course there is systematic observation of teaching in the Horace Mann School, during which the points previously considered are kept to the front. And besides that, a study is made of ten or more lessons from text-books, the good and the bad points being noted and the decisions justified.

These two courses, each a three-hour course for one-half year, are required of all students in the first year of the undergraduate two-year professional courses for the Bachelor's diplomas and degree in Education, and more than any other courses in the institution they are intended to furnish a basis for the specialized study of education in each department during the senior year and later.

The only required work in the senior year for all undergraduate professional courses is the History and Principles of Education.

The first portion of this course examines the ideals and character of education in oriental countries, in Greece and Rome, passing thence to the influence of the Middle Ages, and later to the conceptions and types of education developed at the time of the Renaissance and the Reformation. After this, the influence of the great educators of modern times—Rabelais, Montaigne, Milton, Locke, Rousseau, Basedow, Pestalozzi, Herbart, and Froebel—is analyzed, and their contributions to the present thought and practice are studied.

The psychological conception of education, as represented by Pestalozzi, Herbart, and Froebel, is contrasted with the sociological conception, as advanced by Spencer, and the influence of the latter idea on subject-matter is considered.

At the end of the course a study is made of contemporary conceptions of education, involving the nature and aim of Education, the institutional factors in the process, the subject-matter and method, and the organization and administration of education.

This is a three-hour course for one year, and, since the average student is expected to take fifteen hours of work per week, the proportionate time belonging to it is evident. Returns from 101 students who were taking this course last year show it, too, to have required possibly more than the average time for educational courses, namely, 1.96 hours of study for 1 hour in class.

Several important questions arise in regard to the relation of this

course to other requirements of students, particularly to those of students in the several technical departments of the college:

1. Is not the total amount of the time required for it out of proportion to the other work of the senior year?

2. Does it not devote too large an amount of students' time to the study of ancient educational ideals and practices, which have relatively small direct bearing on modern thought, and which lack vital suggestiveness and stimulating quality to students whose main interests are in the present problems of the methods courses?

If the reply is made that one important aim here is culture, is it not true that the devotion of a large amount of time to this early period for its culture value is out of place in the most strictly professional year of the undergraduate work? Also, may it not be true that as great breadth of view can be obtained from a more intensive study of problems that appear more vitally related to the student's outlook and experience?

On the other hand, is not too little time devoted to the more recent ideas of educational theory and practice, such as the ideas of unification and correlation in the course of study, the relation of school life to community life, the influence of vocational demands and conditions upon school work, the place of art and occupations in interpreting social life? In brief, how practical should a course in the history and principles of education plan to be?

These problems are too difficult to attempt to solve them at the present time, but since much the same questions arise in other institutions for the training of teachers, the hope may be here expressed that they will receive due attention in the near future.

The undergraduate special methods courses need no description at this point. Among the graduate courses the "practica" are of special interest because they aim primarily to teach the proper methods of investigating educational problems. It is true that ideas are still vague as to how the scientific method can be applied to the field of education, but it is certainly in place to undertake the task. The advance of the science of education is directly dependent upon the use of the scientific method, for otherwise the conclusions reached are only views, opinions, not fairly proved facts. The seminars are continuations of the "practica," their special purpose being the preparation of dissertations for the degree of Ph.D. A considerable portion of the advanced work, therefore, has for its distinctive

aim the teaching of right methods of investigation of educational problems.

PRACTICAL WORK.

The term "practical work" was finally hit upon in the search for a suitable name to cover the various kinds of practice, in distinction from theory, undertaken by students in the Horace Mann School and the Speyer School. Included among these kinds are:

Observation of a single child, a small group, or a class.

Instruction of a single child, a small group, or a class.

Preparation of materials for use of a class.

Examination of papers, collecting data for a class.

The observation or study of a school as a whole, its organization and discipline.

Any work that involves direct contact with children, or with their parents, or with the environment of both, for the purpose of influencing the school instruction, or for improving the condition of either, through educational means.

The practical work, therefore, finds its center in the government, instruction, and study of children, although it includes whatever neighborhood work is primarily educational. Thus the practical work in Teachers College includes far more than observation and practice-teaching, as these terms are commonly used in training schools for teachers.

The two schools used for practical work differ widely in their nature.

THE HORACE MANN SCHOOL.

The Horace Mann School, in a building connected with Teachers College, consists of a kindergarten (37 children), an elementary school of seven grades (424 children), and a high-school with a five-year course (430 students); the three departments together having 891 pupils. The number of teachers is 65. The tuition in the kindergarten is \$75 per year, which is gradually increased in the grades, until the amount per pupil in the high school is \$250.

The school is under the control of a superintendent, assisted by three principals, *i. e.*, of the high school, the elementary school, and the kindergarten. Thus the so-called "Horace Mann School" is really a system of schools, corresponding to a full city system, in miniature.

The numerous heads of departments in the college bring in an additional factor. These have always been active in determining the

Horace Mann School curriculum in their respective subjects, and in the selection of text-books, apparatus, etc. They also meet the teachers frequently, individually and in groups, for discussion of the work of the school. Yet their relation to the school in all these matters is advisory only, the superintendent and principals possessing the final authority to decide upon curriculum, text-books, etc. The reason for this arrangement is the conviction that specialists, no matter how competent and energetic, are unprepared to control the instruction in a school. Final responsibility must be centered in one person and his assistants, in order to secure a good curriculum and a fair degree of unity in other respects.

This arrangement, however, leaves it practically to the option of each department how much energy it shall expend in trying to better the school. It is the opinion of the undersigned that a faculty regulation, whereby each department shall put in writing its recommendations as to curriculum, text-books, method, etc., would effect an important improvement. If such a recommendation were expected to reach the superintendent of the school by a certain date each year, a positive responsibility would be placed upon each department. If, in addition, a brief reply to the main points, in writing, could be expected from the principals or superintendent of the school, a business relation between the two parties would be established which might prove very beneficial to all concerned.

Yet there is another need more important than this. Thus far the Horace Mann School has not been a center of interest for Teachers College as a whole. Each department bears a certain relation to the school, to be sure, but the many departments have failed to work *together* in the solution of the problems of instruction there. The result is that both the college and the school lose the benefit of a close contact between departments in the discussion of practical school questions. This means that the college fails to take advantage of its highest opportunity.

Whether this evil can ever be largely remedied is a question. The size of the city, which places the homes of members of the faculty ten to fifteen miles apart, makes it extremely difficult to bring many together for evening meetings. But, worse than that, the diverse interests of the departments render it difficult to find vital questions of common interest. For example, departments representing the kindergarten, elementary instruction, secondary instruction (such as

Latin, Physical Education, Music, and Handwork), college instruction (as History of Education), school administration, and child-study, cannot readily unite in the discussion of practical problems.

Possibly it is best not to attempt unity in such diversity. But it might, at least, be feasible for the departments to be grouped in two or more divisions; for instance, those interested primarily in elementary instruction constituting one group, and those interested in secondary instruction, another group. Each should have its own executive committee or chairman and its stated meetings, and the latter could well equal the library as a stimulus and source of suggestions.

The high tuition is partial explanation for the fact that the school is little used for practice-teaching, although some instruction is undertaken by students in each of the three departments. The absence of such practice, however, renders the school all the more valuable as a model for observation, which is its chief function.

There are at present twenty-three methods courses that make much use of the Horace Mann School for various kinds of practical work. They are given by sixteen departments in the college and average about fourteen students per class, with the exception of one required course that has two hundred members. One of these is a kindergarten course, one is a kindergarten and primary course combined, seven deal with elementary instruction alone, eight with secondary instruction, and six with both elementary and secondary teaching. Twenty of these are special methods courses, only three being general. These twenty-three courses average almost three hours per week for one year, and a little more than one-third of this time is spent in practical work in the Horace Mann School, the remainder being occupied in classroom instruction in the college. Several other education courses make some use of the Horace Mann School.

It is evident, from the above, that it is the policy of the college to have subject-matter and methods courses quite distinct from each other, although all departments would agree that a large amount of method is taught in the subject-matter courses. The idea prevails that there is a sufficient quantity of work pertaining to method to make it necessary to offer separate courses in that field.

Each of these professional courses has been developed independently by the department concerned. No extensive uniformity exists, therefore, or has been aimed at, although comparison of views has no doubt influenced every course materially. In general, it can be said,

however, that the students are divided into small groups, and each group is placed in charge of a regular teacher of the Horace Mann School. In case a methods class has very few students, they may constitute only one such group; but a class of twenty-five members might be divided into two or three divisions, and assigned to as many teachers, for practical work.

These teachers naturally have their preferences even in the primary department, and some degree of specialization is customary in the grammar grades, as well as in the high school. Each head of department, therefore, can without difficulty find satisfactory teachers particularly interested in his field among whom to divide the students in his methods courses. Notices of assignment and records of the same are all attended to by an administrative officer of the college, and the student's program must be arranged in this respect, as in others, at the beginning of the year.

From the time of receiving a group of students, the teacher in the Horace Mann School is the one primarily responsible for their welfare in this work. Indeed, the head of department concerned may seldom put in an appearance to see what the students are accomplishing, although this is the exception rather than the rule. But, on the other hand, it is the rule that the teachers having charge of students in any branch are intimately acquainted with the desires of the college department that they represent, and are in such sympathy with it that they are capable of acting as valuable assistants to it in the field of practice. Indeed, their very reliability offers a temptation to the heads of departments to leave with them the entire responsibility. It should be remembered, too, that the professors in the college are usually experienced teachers of children or of young people below college rank, and in conjunction with the teachers in the Horace Mann School have largely determined the present curriculum of the school. They are, therefore, capable of keeping in close touch with the practical work of their students, without seeing a large amount of it. The responsibility for accepting the practical work for college credit rests primarily with the teachers of the Horace Mann School. This is a serious responsibility, in addition to their other regular duties; but usually any one teacher has no more than one group of college students to supervise, and the cheerfulness with which, almost universally, this duty is undertaken is convincing proof of its worth to the teachers.

The requirements for the various diplomas and degrees are so

different that it is impossible to state exactly how much practical work a student takes. But, in general, each undergraduate student pursues at least one general methods course, and the undergraduate and graduate students alike pursue from one to four other methods courses, general and special. Ordinarily, therefore, a student cannot receive any kind of diploma with less than one hour per week, for one year, of practical work in the Horace Mann School, and it is the rule to take from two to three times that amount.

The observation work naturally finds its motive partly in the practice-teaching that is to follow; yet the time devoted to observation by the student is much greater than that devoted to actual teaching. In fact, the amount of instruction in the Horace Mann School given by a student does not, as a rule, exceed a half-dozen recitation periods, although there are numerous exceptions. The fact that the Speyer School is primarily the school for practice-teaching partly explains this, as does also the high tuition, already referred to. But, in addition, the faculty of Teachers College is practically unanimous in its hearty belief in the great value of observation, when preceded and accompanied by well-developed theory, and when the observation is tested in discussion by competent critics.

THE SPEYER SCHOOL.

The Speyer School, located eight blocks directly north of Teachers College, at 94 Lawrence street, is a free school entirely supported by, and under the control of, the College. The term "school" here, however, includes not only a school in the ordinary sense, but an organization for neighborhood work as well. The school proper consists at present of a kindergarten and six grades (160 children in all), the seventh and eighth grades to be added as the present sixth grade advances. The number of regular teachers is 7, besides an acting principal and several supervisors. The children are desired to represent average families in their home advantages, and have been chosen with this in view from those who have happened to offer themselves as pupils.

The neighborhood work is under the control of a director, who is assisted by three regularly employed assistants, besides twenty or thirty other workers, giving one or more hours per week each. The resident workers occupy the fifth floor of the building. The school and neighborhood work together keep the greater portion of the building occu-

pied throughout the day and evening. The "school," including these two kinds of work, is under the general supervision of two departments of the college, the department of school administration being responsible for all matters of business, and the department of elementary education for all matters strictly educational, such as curriculum, selection of text-books, etc. The other departments of the college have a decided influence on the school; indeed, in several cases, a very active share in its work; but their relation is only advisory, as at the Horace Mann School.

The school proper is primarily a school of practice and experiment. It is used mainly by college seniors and graduate students. A large percentage of the former are normal-school graduates, and many are experienced teachers. They undertake practice-teaching as a required part of their methods courses, and they find its chief value in the criticisms received. As a rule, they teach one branch of study for a month or more, after having observed a class long enough to become fairly well acquainted with the children and their work.

The graduate students who do work at the school are more numerous than the undergraduates. They get the benefit of criticism, as do the others; but that is not the main profit aimed at. Their work is usually of an experimental nature, although they sometimes act as supervisors and critics of other students. Most of such work, as most of the other practical work both at the Horace Mann and at the Speyer School, is immediately a part of some college course, the class-room discussion dealing with theory, and this practice aiming at the application of that theory. In connection with such courses, some topic bearing on the curriculum or on method may be selected that calls both for research in the library and for actual experiment in the Speyer School. For example, this year two students have chosen the problem of teaching children how to study history; one, the problem of primitive life in the first two grades; three, the possibility and feasibility of a much better kind of problem in arithmetic; one, the difficulties in the way of unifying the kindergarten and primary school, and the remedies for them. The last topic calls for library research and observation mainly, rather than practice-teaching. Whatever assistance can be gotten from any department is entirely admissible, but the student must have force enough to carry on his investigation in his own way, and reach safe conclusions of some sort from data that an outsider can appreciate. Valuable new knowledge is one thing aimed at, but a good method of

working on educational problems, approximating a scientific method, is not less important. Thus there are two values aimed at in such graduate work that are not expected for undergraduate students.

The neighborhood or settlement work has been begun by attempting to duplicate such work as is done in the better "Settlements" in cities. To this end classes in cooking, sewing, and dancing have been conducted in the afternoon; numerous clubs have been established for the evenings, devoting their time to exercises in the gymnasium, including the use of the bath, to manual work, to literature, to parliamentary law, home nursing, etc., and the library with two reading rooms, has been kept open at certain hours for the use of adults and children. In addition, a large number of children collect at the building on afternoons for games of various kinds, and for story-telling; and on certain evenings young people and adults meet there for social entertainment, including games, music, reading, and dancing in their program. Through these means as many as three hundred families are affected more or less, while the school proper reaches about one hundred and fifty other families, the two groups of families overlapping very little. Thus the neighborhood work supplements that of the school, so that the two together influence between four hundred and five hundred families in a community of perhaps 150,000 persons. And since the classes and clubs are conducted or supervised mainly by volunteer students from Columbia College as well as from Teachers College, the value to the university as a whole is apparent. Much of this volunteer work is no part of any course and receives no credit, being undertaken solely on account of a desire to engage in some form of social work.

The moment, however, one attempts to do considerably more than entertain children in a club for an hour or more—that is, the moment one undertakes to put such work on an educational plane—he is confronted with a most difficult problem. Proper discipline requires more judgment and successful appeals to interest demand more skill, than in the day school. Both subject-matter and method, must therefore, receive special attention. More originality and a more careful study of home habits, street life, etc., are demanded than in ordinary instruction. For such reasons this work may now also be accepted in Teachers College as practical work with credit for graduate students. For example, one student the present year has general charge of the manual training in the several boys' clubs; two together are in control of a club that

aims at the good oral reading and also telling of classic stories, dramas, etc.; one will soon undertake the instruction of a class of children defective in hearing; and one is responsible for teaching games and other kinds of entertainment to a class of fifteen-year old girls. All such work is peculiarly difficult and truly experimental, since neither the customs of the schools nor those of the settlements can be adopted. There is the assumption here, too, that social service is fully within the sphere of the duties of teachers in training, and experience of this sort will have a much-needed effect upon the common school.

As time passes an attempt will be made to modify this neighborhood work radically, and to bring it and the day school together. At present, although the two are conducted in the same building, they deal with different classes of people and have different aims, so that they are practically unrelated. In consequence, each is seriously defective. Anyone must admit that even the so-called good school of the present is a thoroughly theoretical institution, imparting a large amount of theory about how to live and exciting a good degree of interest, but not following up either to the point of use or practice. So it is with the Speyer School. The neighborhood work, on the other hand, is superficial and scattering, offering little of theory; in fact, trying to be practical on a meager quantity of thought.

If the two efforts could be united into a single work, something of far more value might be accomplished. Then the solution of probably the greatest modern educational problem would be undertaken, namely, the question: Is it possible for a school to be so conducted as to combine theory with practice abundantly? The first step toward a solution would consist in centering the attention of the teachers and neighborhood workers alike upon largely the same set of persons; that is, the children in the school and their parents. A few concrete examples will suggest the possibilities that might follow.

The fourth grade in the school recently planted some narcissus bulbs in a small flower garden out-of-doors, and afterward made some study of such bulbs. Suppose, in this connection, that the children were brought to realize that the long winter is before us, during which the coloring of vegetation can be little enjoyed, and that the narcissus bulb is a special means of securing beautiful flowers at the earliest possible moment in the spring. Suppose that it is also shown that thousands of persons in our city so hunger for such beauty during the cold season that they spend money for flowers, just as for bread, thus

supporting a florist's establishment every few blocks. Suppose, finally, that similar flower-producing bulbs are studied and associated with the narcissus, such as the hyacinth, tulip, jonquil, and tuberose. At this point school instruction must usually stop owing to pressure of other duties.

But the real fruitage of the learning is lost, unless other things are added. Awakened to a sense of the beauty and need of more color in winter, the children might be led to care for some house plants during this period. But what kinds, where obtained, where placed, and how cared for? Under guidance they might form the habit of visiting the florists occasionally for the purpose of seeing the variety of plants on hand, renewing the acquaintance with some, and *buying* some. The children even in the kindergarten have volunteered the information that they can "work" their fathers for pennies, if they ask for one at a time, and the first five cents spent by a child for flowers marks an epoch in his life much as when one's first book is purchased. Where, also, might some of these several kinds of bulbs be bought, how much would they cost, where and how might they be planted, and how should each be cared for? The school breaks down at such work as this because of a lack of helpers; and at this point it is proposed that the neighborhood workers come in to give assistance, following up each of these points to its execution.

But these workers might well, also, make demands on the school. In the course of their visits to the homes in the neighborhood they discover what newspapers and magazines, if any, are read, and to some extent how they are read. They make some observations on the topics of conversation at meal times, the furniture of the home, the sanitary conditions, the extent to which the families spend their evenings together, the behavior of older children toward their younger brothers and sisters and their parents, the games that are played, and other amusements. Conscious of the needs that these observations suggest, why should not these workers influence the teachers to instruct the older children about differences among newspapers, what the characteristics of the best ones are, what the best parts of a paper are, and how to read the various parts? Why should they not, likewise, expect the teachers to acquaint the children, and the parents through parents' meetings, with the faults of poor magazines, and the names of some of the best and cheapest, including some discussion as to how to read them? Why might they not further insist that more topics be included in the school

curriculum that would prove acceptable as topics of conversation at home, the teacher aiming to present these in such a manner that the children would be able to converse about them intelligently? Why not, in addition, suggest that the ability to tell a story and read well aloud be so developed—on classic subject-matter—that the ability may often prove the means of holding the members of a family together in the evening? The school already partly accomplishes these tasks. If it would go farther, the neighborhood workers could be of great assistance in carrying them to the end, in executing the theory offered by the school. In this manner the teachers and the neighborhood workers might well co-operate, each assisting the other and each asking assistance from the other.

The problem involved calls into question the *nature of the school*. So much of what is taught there is never followed up to the point of execution, is not made to meet real needs, even when it might well meet them. And so much of what is taught is quite unrelated to real needs, to life! It is no wonder that many persons doubt the possibility of making the school strongly practical as well as theoretical. If a number of experimental stations, such as the Speyer School, would work energetically on this problem, a different faith might come into being. It would take a larger force of teachers to conduct a school that actually applied a fair part of the knowledge that it presented, but the public would finally be far more willing to employ a larger number. There are many indications that the school of the future will combine many of the characteristics of the present public school with those of the present settlement work, being perhaps a sort of cross between the two. It is the purpose, at least, to strive in this direction in the Speyer School, and to call upon graduate students to share in such work, whether they undertake "practical work" in the school proper or in the other branches of the institution. Gradually the two must become one, if the educational theory of the college finds realization in the school.

In conclusion, it is impossible to determine from the preceding statements just how much observation, practice-teaching, or other practical work is required from students of Teachers College. It should be remembered that this is due to the great variety of purpose and advancement of the students. It is at least a question whether college graduates who have taught for a number of years, and who are now specializing in the history of education or child-study, should be

required to do any practice-teaching whatever. And it is evident that others should do more or less of such work, according to their past training and present object. But, on the other hand, any student who wishes to specialize to a considerable extent in practical work in the "elementary" school can do so to his heart's content at Teachers College. The two schools offer ample facilities at present. When it comes to secondary work, however, this is unfortunately not yet the case.

PLANS OF RECITATIONS.

There is a general agreement among the departments of the college that written plans for recitations are an essential element in the training of teachers. But the nature of such plans has been differently conceived by the various instructors, so that students taking a methods course under one professor have made out one kind of plan, and taking such a course under another have followed a different scheme. This lack of harmony has led to much confusion and loss of time. It has seemed important, therefore, that some agreement be reached as to the main characteristics of these plans. Following is a typical plan, taken from Manual Training, whose *form* has been agreed upon as acceptable by about half of the departments of the college. Quite possibly it will prove acceptable to the remainder when opportunity has been found for its careful consideration.

LESSON PLAN FOR MAKING A SAILBOAT—FIFTH GRADE.

PREPARED BY DR. E. B. KENT.

Teacher's aim.—To make a sailboat which shall have value for the children as a toy, and thereby to determine some fundamental principles of boat construction. Illustrations of these principles are to be observed at the One Hundred and Twenty-ninth street piers.

Children's aim.—To make a sailboat.

SUBJECT-MATTER.

A. *The hull.*

- I. It must float; *i. e.*, be lighter than equal bulk of water.

Advantages of wood, paper, etc.

How iron may be used.

METHOD.

- How many of you have made sailboats? What difficulties, if any, did you meet in making them? In sailing them? We shall try to avoid these. What shall we make first?
- I. What is the most important point to look out for in making the hull? What, then, are good materials? But are not steamships built of iron? Why do they float? Illustrate with a cup.

SUBJECT-MATTER.

Hollowness, rather than lightness of material, keeps most boats afloat.

Wood best for our purpose because it will float without being hollowed.

2. Form.

a) Must be such as to allow the greatest speed.

Sharpening the prow will increase speed.

Length of point, 3"—4".

b) Must be such as to sail straight; i.e., bi-symmetrical.

Prow must be in middle of end. Slant must be the same on both sides.

Use of chisel.

Advantage of making the cuts parallel to the line.

c) Other details of form affecting speed.

All splashing by the boat is wasted energy.

Occurs at corners.

Bottom to be rounded with plane or knife.

Stern cut to semicircle, and made to slant upward from keel.

B. Motive power.

I. Mast.

The larger the sail, the more power.

METHOD.

What, then, has lightness of material to do with keeping the ordinary boat afloat?

Best material for us to use?

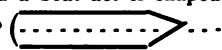
2.

a) Why not use these blocks just as they are ($1'' \times 2'' \times 10''$) for our hulls?

Why make them pointed?

How long shall the point be?

b) In planning the point, we must think of something else besides speed.

How would a boat act if shaped like this?  (top view).

How, then, must we plan the point? Draw lines for point.

What tool shall we cut them with? Who can show us how to use it? (Class begins work.)

c) Is there anything else which we may do to the hull to increase the speed?

The point increases speed because it reduces the splashing of the boat—saves the water from turning sharp corners.

At what other points will there be splashing and disturbance of water?

How remedy this?

Process treated as above.

How describe a good hull? (Work.)

What shall we do next?

How tall a mast?

SUBJECT-MATTER.	METHOD.
The size of sail is limited by the height of the mast.	Why so tall?
The height of the mast is limited by the stability of hull.	Why not taller?
Consequences of too high a mast.	
2. Ballast.	
Steadies boat and so allows increased sail area.	Can we do anything to the hull which will enable it to carry more mast and sail without capsizing?
Freight ships depend on their cargo for ballast.	Is this done with real boats? How?
Racing yachts have a deep-reaching metal keel.	
Use of large nail as ballast.	In what two ways could you use this spike as ballast for your boat?
a) As common keel, fastened to bottom of boat with staples. Better for use in shallow water.	Advantages of each? <i>(Work.)</i>
b) As "fin" keel, by driving perpendicularly into bottom of boat. Much steadier, but requires deep water.	
Best height for mast.	Now, once more, how tall shall we make the mast?
Determined by experiment at sink or in pail of water. Allow something for weight of sail.	How find out? Only by trying. Begin with a mast you are sure is tall enough and cut it down till boat behaves properly in water.
A mast should taper to give maximum of strength and lightness respectively where each is most needed.	What is the proper shape for a mast? Why?
Process.	
1) Bore $\frac{1}{4}$ " hole through boat 1" or 2" forward of center. 2) Split a long piece from a $\frac{1}{4}$ " board and fit to boat. 3) Test in water and cut off at top till boat becomes steady. 4) Cut off about $\frac{1}{2}$ more to allow for weight of sail. 5) Taper mast using plane or knife. 6) Split the lower end of mast, insert in hole, and secure by driving wooden wedge into the split.	What shall we do first in making the mast? Why? What next? Why? etc.

SUBJECT-MATTER.	METHOD.
3. Sail.	What shape and size of sail shall we use?
a) Size—as high as mast will allow and almost as broad at bottom.	
b) Shapes.	Advantages of the different shapes.
(1) Common, four sided; gives largest surface.	
(2) Triangular, or "leg of mutton;" less surface, but more easily made and rigged.	
c) Spreading.	How kept spread?
Use of boom, gaff, hoisting-line.	
Loops for attaching to mast.	
Hems for holding boom and gaff.	
Process.	
Cut sail.	Cut paper pattern just the shape and size you wish your sail to be.
Make hems.	Cut from cloth, allowing enough for the hems.
Attach mast-loops and hoisting-line.	
Insert spars.	Now, what do you think are the two most important things to look out for in making a sail?
Make small hole in top of mast and pass hoisting-line through it.	
C. Means of steering.	
Necessity of rudder.	Does the boat need anything else? How are boats steered?
It tends to push the stern of the boat away from the side toward which it is turned.	
A sailboat cannot be steered very much by the rudder alone. The slant of the sail must often be changed too, and this we cannot do on our boat. Still we shall need a rudder to hold the stern in place, and thus make the boat point always with the wind instead of turning around and around.	On a sailboat, is the steering done entirely by the rudder? (State facts opposite.)
(Possibly discuss tacking and explain how a boat may sail almost into the wind.)	
Making a rudder.	What shall be the shape of the rudder?
Surface about $1\frac{1}{2}$ " square.	How large?
Fitted to hole in stern.	How attached?
Conclude with excursion to the One Hundred and Twenty-ninth street piers. Study the adaptation of the different types there seen to their various purposes, and explain in this way the larger differences in form, speed, motive power, etc.	

The first characteristic of this plan is that it has two parts, subject-matter and method, that are quite distinct from each other. The primary reason for this separation is that poor teaching is as often due to lack of digestion of subject-matter as to bad method; and when the subject-matter is not placed entirely by itself it is difficult to see how poorly it has been organized or how meager it is in content. And since it is necessary to think subject-matter through, independently of method, indeed *before* method has been considered, the former is placed on the left.

The method of presenting any portion of the subject-matter is found immediately to the right in the method column—a plan that can be followed in most cases, though not in all.

The method of presentation is shown in direct discourse because, when the recitation is finally being conducted, the thought of the teacher must take that form. This characteristic, also, cannot belong to all recitations, although it can to a great part of them.

The paragraphing and indentation, both in subject-matter and method, are intended to reveal the relative values of facts and remarks, a matter of the utmost importance in teaching. Only when relative values are thus clearly foreseen by the teacher are they likely to be appreciated by the learner.

There is no opposition between the Herbartian "formal steps" and the form of plan here suggested. In fact, they merely supplement each other; the "formal steps" indicate the main steps in the inductive-deductive movement, and this form of plan merely suggests other thoughts *besides those* that might well be guides when one is preparing lesson plans.

F. M. McMURRY.
T. D. WOOD.
D. E. SMITH.
C. H. FARNSWORTH.
G. R. RICHARDS.

LIST OF ACTIVE MEMBERS.

Edwin A. Alderman, president Tulane University, New Orleans, La.
Zonia Baber, School of Education, University of Chicago, Chicago, Ill.
Frank Bachman ,Normal College, Athens, O.
C. M. Bardwell, Aurora, Ill.
R. H. Beggs, Whittier School, Denver, Colo.
Frank G. Blair, State Normal School, Charleston, Ill.
Frederick Bolton, Iowa City, Ia.
Richard G. Boone, superintendent, Cincinnati, O.
E. C. Branson, Normal School, Athens, Ga.
Francis B. Brant, 1637 S. Fifteenth street, Philadelphia, Pa.
Stratton D. Brooks, Mason street, Boston, Mass.
Elmer E. Brown, University of California, Berkeley, Calif.
George P. Brown, editor, Bloomington, Ill.
Martin G. Brumbaugh, 3324 Walnut street, Philadelphia, Pa.
William L. Bryan, University of Indiana, Bloomington, Ind.
George V. Buchanan, 614 W. Seventh street, Sedalia, Mo.
Edward F. Buchner, University of Alabama, University, Ala.
Frederick Burk, State Normal School, San Francisco, Calif.
Jesse D. Burks, 557 W. Twelfth street, New York, N. Y.
W. H. Burnham, Clark University, Worcester, Mass.
Nicholas Murray Butler, Columbia University, New York, N. Y.
B. C. Caldwell, president Louisiana State Normal, Natchitoches, La.
Grant Carr, Normal School, Oswego, N. Y.
Clarence F. Carroll, Worcester, Mass.
C. P. Cary, state superintendent, Madison, Wis.
E. W. Chubb, Athens, O.
P. P. Claxton, Southern Education Board, Knoxville, Tenn.
David E. Cloyd, 116 Nassau street, New York, N. Y.
John W. Cook, State Normal School, DeKalb, Ill.
Wm. J. Crane, Marshalltown, Iowa.
Ellwood I. Cubberly, Stanford University, California.
Frank M. Darling, 320 W. Sixty-first place, Chicago.
Wm. M. Davidson, Topeka, Kan.
Washington S. Dearmont, State Normal School, Cape Girardeau, Mo.
Charles DeGarmo, Cornell University, Ithaca, N. Y.
John Dewey, University of Chicago, Chicago, Ill.
Edwin D. Dexter, Urbana, Ill.

- Richard E. Dodge, Columbia University, New York, N. Y.
Newton C. Dougherty, Peoria, Ill.
Augustus S. Downing, One Hundred and Nineteenth street and Second
avenue, New York, N. Y.
F. B. Dressler, University of California, Berkeley, Calif.
Samuel T. Dutton, Columbia University, New York, N. Y.
Charles B. Dyke, Kamehameha School, Honolulu, H. I.
Andrew W. Edson, Park avenue and Fifty-ninth street, New York, N. Y.
A. Kaswell Ellis, University of Texas, Austin, Tex.
W. H. Elson, Grand Rapids, Mich.
David Felmley, State Normal University, Normal, Ill.
Frank A. Fitzpatrick, Boston, Mass.
George M. Forbes, Rochester University, Rochester, N. Y.
R. S. Garwood, Marshall, Mich.
Charles B. Gilbert, New York, N. Y., D. Appleton & Co.
Newell D. Gilbert, DeKalb, Ill.
E. C. Glass, Lynchburg, Va.
John Glotfelter, Emporia, Kan.
J. P. Gordy, Ohio State University, Columbus, O.
James M. Greenwood, Kansas City, Mo.
W. N. Hailman, Boston, Mass., Ainsworth & Co.
Reuben P. Halleck, Boys, High School, Louisville, Ky.
Rufus H. Halsey, State Normal School, Oshkosh, Wis.
Paul Henry Hanus, Harvard University, Cambridge, Mass.
Miss Ada VanStone Harris, City Schools, Rochester, N. Y.
W. H. Hatch, Oak Park, Ill.
Mrs. Josephine W. Heermans, Brunswick Hotel, Kansas City, Mo.
J. W. Henninger, State Normal School, Macomb, Ill.
Walter L. Hervey, 320 Manhattan avenue, New York, N. Y.
Edgar L. Hewett, Las Vegas, N. M.
M. J. Holmes, State Normal University, Normal, Ill.
W. W. Howe, White Hall, N. Y.
J. I. Jegi, Normal School, Milwaukee, Wis.
Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.
Lewis H. Jones, State Normal College, Ypsilanti, Mich.
J. A. Keith, Northern Illinois State Normal School, DeKalb, Ill.
John R. Kirk, State Normal School, Kirksville, Mo.
Henry E. Kratz, Calumet, Mich.
Ossian H. Lang, editor, 61 E. Ninth street, New York, N. Y.
Isabel Lawrence, Normal School, St. Cloud, Minn.
George H. Locke, University of Chicago, Chicago, Ill.
Livingston C. Lord, State Normal School, Charleston, Ill.

- Charles D. Lowry, 307 Touhy avenue, Chicago.
- Herman T. Luckens, Normal School, California, Pa.
- G. W. A. Luckey, Lincoln, Neb.
- President E. O. Lyte, Normal School, Millersville, Pa.
- John A. MacVannel, Columbia University, New York, N. Y.
- David R. Major, Columbus, O.
- C. E. Mann, St. Charles, Ill.
- Frank A. Manny, Ethical Culture Schools, 109 W. Fifty-fourth street, New York, N. Y.
- Guy E. Maxwell, State Normal School, Winona, Minn.
- William H. Maxwell, superintendent of schools, New York, N. Y.
- Charles McKenny, Normal School, Milwaukee, Wis.
- Charles A. McMurry, State Normal School, DeKalb, Ill.
- Frank M. McMurry, Teachers College, New York, N. Y.
- Israel C. McNeil, Normal School, West Superior, Wis.
- Wm. A. Millis, Crawfordsville, Ind.
- J. F. Millspaugh, State Normal School, Winona, Minn.
- Paul Monroe, Columbia University, New York, N. Y.
- Will S. Monroe, State Normal School, Westfield, Mass.
- Ernest C. Moore, University of California, Berkeley, Calif.
- Frank Morton, Lowell High School, San Francisco, Calif.
- Theodore B. Noss, State Normal School, California, Pa.
- M. V. O'Shea, University of Wisconsin, Madison, Wis.
- Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
- John H. Phillips, Birmingham, Ala.
- John T. Prince, West Newton, Mass.
- J. F. Reigart, 109 W. Fifty-fourth street, New York, N. Y.
- R. R. Reeder, Hastings-on-Hudson, New York.
- C. M. Richards, 230 W. One Hundred and Fifth street, New York, N. Y.
- Emily J. Rice, School of Education, University of Chicago, Chicago, Ill.
- R. N. Roark, Kentucky University, Lexington, Ky.
- Stuart H. Rowe, 30 Academy street, New Haven, Conn.
- J. E. Russell, Teachers College, New York, N. Y.
- Lucy M. Salmon, Poughkeepsie, N. Y.
- Howard Sandison, Terre Haute, Ind.
- Myron T. Scudder, State Normal School, New Paltz, N. Y.
- Levi Seeley, State Normal School, 482 W. State street, Trenton, N. J.
- Burgess Shank, Normal School, Valley City, North Dakota.
- H. W. Shryock, State Normal Schooi, Carbondale, Ill.
- Herbert M. Slauzon, Ann Arbor, Mich.
- David E. Smith, Teachers College, New York, N. Y.
- George M. Smith, University of South Dakota, Vermillion, S. D.

- Z. X. Snyder, State Normal School, Greeley, Colo.
F. Louis Soldan, Ninth and Locust streets, St. Louis, Mo.
Edward D. Starbuck, Leland Stanford University, Palo Alto, Calif.
J. W. Stearns, University of Wisconsin, Madison, Wis.
J. R. Street, University of Syracuse, Syracuse, N. Y.
W. S. Sutton, University of Texas, Austin, Tex.
Joseph S. Taylor, 2275 Aqueduct avenue, University Heights, New York,
N. Y.
Charles H. Thurber, Ginn & Co., Boston, Mass.
C. C. VanLiew, State Normal School, Chico, Calif.
James H. VanSickle, Baltimore, Md.
Sarah J. Walter, Willimantic, Conn.
Samuel Weir, Clarion Normal School, Clarion, Pa.
Guy Montrose Whipple, Cornell University, Ithaca, N. Y.
A. S. Whitney, University of Michigan, Ann Arbor, Mich.
J. J. Wilkinson, Chicago, Ill.
J. M. Wilkinson, Emporia, Kan.
Lightner Witmer, University of Pennsylvania, Philadelphia, Pa.
L. E. Wolfe, San Antonio, Tex.
O. I. Woodley, Menominee, Mich.

THE THIRD YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART II

NATURE-STUDY

BY

WILBUR S. JACKMAN
The University of Chicago

EDITED BY

MANFRED J. HOLMES

MEETINGS FOR THE DISCUSSION OF THIS PAPER WILL BE HELD AT 4:00 P. M.,
MONDAY, JUNE 27, AND AT 4:30 P. M., TUESDAY, JUNE 28, 1904,
ROOM I, HALL OF CONGRESSSES, WORLD'S
FAIR GROUNDS, ST. LOUIS

CHICAGO
THE UNIVERSITY OF CHICAGO PRESS
1904

COPYRIGHT, 1904, BY
MANFRED J. HOLMES
CHICAGO, ILLINOIS

NOTICE TO ACTIVE MEMBERS.

THIS YEARBOOK brings before the National Society a timely and valuable contribution dealing with one of the most vital problems of the elementary course of study.

Professor Jackman is a well-known pioneer and leader in nature-study, and what he says on the subject will command the attention of all serious students of the elementary-school problem.

There will no doubt be a large attendance of active members at our St. Louis meetings, and it is urged that each member make a careful study of the paper beforehand. Experience shows clearly that such preliminary study is necessary to appreciation and fair treatment of the author, and that without it our meetings cannot yield their highest value.

It is probably the unanimous voice of the members of the Society that the discussion should be on the paper, and that those who have studied it should be given preference in discussion. Carefully prepared discussions will be valuable for the YEARBOOK.

It will do much to extend and carry out the work of the Society if members will form local round tables for the study of the problems discussed in the YEARBOOKS. Such local circles can get extra books at a reduction of one-fifth the retail price by sending directly to The University of Chicago Press.

Election of active members and other business will be transacted at the Tuesday meeting. The time for this second meeting can be changed, if necessary, to meet the convenience of the members present.

At one of the meetings time will be given to the reception of five-to ten-minute reports from active members setting forth some specific problem they are at work upon, showing method of attacking the problem, and indicating results when results have been reached. These reports ought to be of value in several ways; but first of all they will show the extent to which scientific spirit and method are found in the educational field, so far as the members of the National Society represent that field.

It is believed that these written reports will be one of the most interesting features of our programs, and, at the discretion of the Executive Committee, may be printed in the YEARBOOK. Any member having such report, but being unable to attend the meetings, is requested to send it to the Secretary.

OFFICERS AND EXECUTIVE COMMITTEE.

WILBUR S. JACKMAN, University of Chicago, *President.*

CHARLES DEGARMO, Cornell University, Ithaca, N. Y.

CHARLES P. CARY, State Superintendent, Madison, Wis.

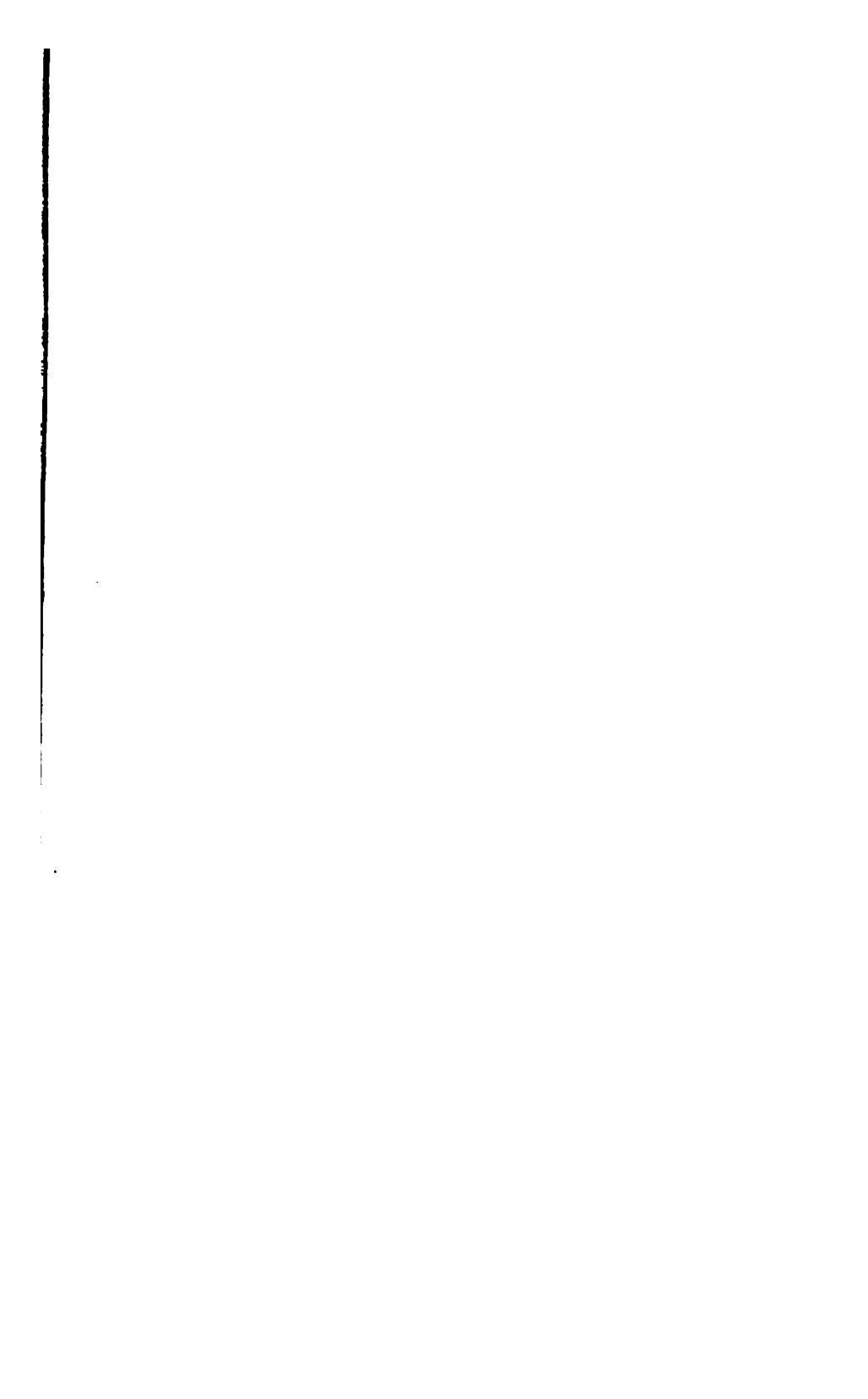
REUBEN POST HALLECK, Male High School, Louisville, Ky.

CHARLES A. McMURRY, Northern Illinois State Normal School,
DeKalb, Ill.

MANFRED J. HOLMES, Illinois State Normal University, Normal, Ill.,
Secretary-Treasurer.

TABLE OF CONTENTS.

FOREWORD	8
CHAPTER I. INTRODUCTION	9-21
1. Nature-Study—Its General Meaning	9
2. The Unity of Nature-Study and Natural Science	11
3. The Nature of Observation	15
4. Imaging in Nature-Study	18
CHAPTER II. THE SCOPE OF NATURE-STUDY	22-43
1. Field-Work	22
2. Nature-Study and Man in the Landscape	27
3. The Farm	29
4. The Garden	31
5. The Dwelling	37
6. The City	39
7. Nature-Study and History	41
CHAPTER III. THE STUDY OF INDIVIDUALS <i>versus</i> THAT OF TYPES	44-49
CHAPTER IV. NATURE-STUDY AND EXPRESSION	50-64
1. Color	50
2. Drawing	54
3. Modeling	55
4. Making	55
5. Reading and Writing	56
6. Music	62
CHAPTER V. NUMBER-WORK IN NATURE-STUDY	65-72
1. Dispersal of Seeds	69
2. Seasonal Conditions: Were They Favorable or Unfavorable?	70
CHAPTER VI. NATURE-STUDY AND MORALS	73-81
APPENDIX A. A RECORD IN NATURE-STUDY	82-83
APPENDIX B. COURSE OF STUDY	84-96
MINUTES OF MEETINGS HELD AT ATLANTA, GA., FEBRUARY 22-25, 1904	97-99
LIST OF ACTIVE MEMBERS	100-103



FOREWORD.

IN placing this contribution before the Society, it is deemed necessary to offer a word of explanation as to form and content. Nature-study is not a matter that can be argued into the schools, nor can it be established by tumbling down upon them a great load of miscellaneous facts. Neither can it ever play any important part in education while it is treated as a thing in itself. This monograph has been prepared, therefore, with three points in mind: (1) that nature-study must be presented in accordance with the general principles of psychology which apply to all other subjects; (2) by a few illustrations, to show how it is necessary to start with great general views or pictures of nature and to proceed gradually to the details, thus enabling the mind as it grows, to organize the facts, the lesser under the greater, at every step; (3) that nature-study forms but a part of the educational work; its relationships reach into all other subjects which go to make up the whole. The aim has been to emphasize these points by stating reasons, without entering upon exhaustive arguments; by suggesting salient centers of subject-matter, without becoming submerged in minute details; by dealing with the principles of method, without prolonging a discussion of devices; and, finally, by carrying through the whole a due regard for the needs of the young and growing mind, and a proper consideration for its methods and modes of development.

The paper embodies the best results of the author's experience of several years of teaching the subject, and he will be only too happy if it calls forth from his colleagues and many friends a discussion that will point the way to better things.

THE THIRD YEARBOOK

NATURE-STUDY.

CHAPTER I.

INTRODUCTION.

I. NATURE-STUDY: ITS GENERAL MEANING.

THE spirit of nature-study requires that the pupils be intelligently directed in the study of their immediate environment in its relation to themselves; that there shall be, under the natural stimulus of the desire to know, a constant effort at a rational interpretation of the common things observed. If this plan be consistently pursued, it will naturally follow that the real knowledge acquired, the trustworthy methods developed, and the correct habits of observing and imaging formed will lay a sound foundation for the expansive scientific study which gradually creates a world-picture, and at the same time enables the student, by means of the microscope, the dissecting knife and the alembic, to penetrate intelligently into its minute details.

The study of nature ultimately resolves itself into a study of energy. The great aspects under which energy may be observed—*color, form, and force*—are presented to the children through *an inquiry into their functions*.

In nature-study as in everything else, the work must begin with what the individual has already acquired, and it should proceed from this according to the natural laws of mind-growth. The pupil's knowledge of nature, which must be recognized as the basis for further study, has been gathered by a more or less careful observation of his surrounding landscape. The function of the teacher is to assist the learner through experiment, and by following the suggestions derived from experience in an elaboration of the details of this great indefinite picture. If properly conducted, the study will lead to a fuller recognition of natural laws which are simply the statement of the sequence of phenomena, that, so far as observed, remains constant.

It is a fact of tremendous import for teachers to remember that there can be no rational observation of anything that is not stimulated and guided by the suggestion of law. This is true whether the pupil is a child or an adult. Failure to understand the importance of this point is responsible for the unspeakable confusion which now exists in most teachers' minds regarding the selection and presentation of material in nature-study. The examination by children into the minute details of a subject is not only a physical impossibility, but it is also an absurdity, for the simple reason that for them through these minutiae there can be no manifestation of law. Illustrations are abundant. The older botany, when tried with the children, failed for precisely this reason. The children could see, physically, the venation, margin, shape, etc., of leaves; but their work fell below true observation, and consequently interest died out, because as presented, no reason or law suggested itself in explanation of these facts. When the same facts are reached through a broad presentation of the plant's relations to light, heat, and moisture, they at once become true and interesting objects of observation and fruitful sources of thought, because the perceived relationships suggest reasons that explain them. The same is true whatever may be the aspect of presentation—that of beauty as well as that of use. For the idea of beauty rests finally upon the perception of fitness, of adaptation; and adaptation points to the statement of a law.

It must not be supposed that it is here maintained that everything done in nature-study should lead at once to an actual formulation of law. This would be manifestly impossible and absurd. Many things are under observation at present for which the wisest cannot state the law but it is their suggestion in that direction that preserves interest in the study. The sweep of the seasons is a fact that may be so presented to children that its hint of law will stimulate active observation and thought long before any formula for it can be stated.

The region of nature is for the child, as for the savage and the ignorant man, a domain of mystery and of fancy. The aim of the teacher should be so to present nature and its various manifestations that the reasonableness of things shall appear. The pupil must be trained to see things, as nearly as he can, as they actually exist, and not as though he were intoxicated or insane or in a delirium.

There is no reason to fear that this will rob anyone of his enjoyment of nature, or that it will reduce it at one stroke to the level of the prosaic. Truth in science is always more splendid than fiction, and the pictures developed by the imagination out of real conditions always eclipse those that are conjured up by flights of fancy.

II. THE UNITY OF NATURE-STUDY AND NATURAL SCIENCE.

In a general survey of the place and functions of nature-study it is quite important that its relation to the more technical branches of natural science should be duly considered. For the purpose of properly defining a subject it may be necessary to set it apart in a state of isolation and to place the emphasis upon its differences; but for finding the full measure of its usefulness it is of far greater importance to discover its true relations.

What seems to be an almost inherent tendency of the human being to worship the abstruse, the mystical, and the learned has never been more amusingly exemplified than in the disposition of many of those who call themselves scientists to disown nature-study and to deny that it bears any particularly useful relation to their own special subjects. This refusal to recognize nature-study as a part of science, and the denial that its methods are distinctly scientific, have done much to discredit the subject in the eyes of teachers and pupils and the public at large.

The objections as urged may have been valid, in some degree, against the crude and rudimentary methods employed in the beginning; these nature-study itself disowns. But they cannot be successfully maintained against the study when it is properly conducted. That nature-study is the forerunner, the direct progenitor, of natural science is a perfectly obvious and most helpful truth to anyone who will fairly consider the matter and the methods of both.

Nature-study is precisely what it proclaims itself to be—the study of nature. Its subject-matter lies in the kingdoms of earth, air, sky, and water; it embraces a search for knowledge of all phenomena and of the laws by which these are associated. Natural science finds all of its subject-matter in the same fields, and it pursues its course toward the same end.

In nature-study everything depends primarily upon the integrity and the proper use of the senses. Knowledge becomes clear and

trustworthy exactly in proportion to the accuracy with which the senses furnish the data. Natural science is dependent upon the same organs and upon data obtained by precisely the same means.

In nature-study the value of the subject to the individual depends upon his own observation and investigation. The original and personal character of these determine the rate and amount of progress that an individual can make. It is this point, too, that is strongly insisted upon in natural science. Everything is open to question by everyone. Nothing is necessarily assured simply because someone else has claimed to have made the observation.

In nature-study the aim is to have the pupil investigate phenomena and things for the purpose of determining their relation. Nothing is studied in isolation. By such methods certain relationships are discovered to be constant and the pupil early gets the clue to the meaning of natural law.¹ In natural science the aim is the same; the student seeks then the study of natural phenomena for those abiding relations, those sequences of cause and effect, the expression of which becomes the statement of natural law. The determination of the constant, hence natural, order of phenomena is the ultimate end of all study. It is the task of the scientist, the historian, the philosopher alike, and nature-study represents but a primary stage of the same thing. There is no actual dividing line, therefore, between the pupil in nature-study and the student of natural science. The motive, the material, and the principles of method are precisely the same. In practical instruction, however, the characteristic differences are encountered in teaching these subjects to pupils of different ages that are met with in other studies of the curriculum.

In nature-study with children the teacher has to deal with untrained senses and with mental powers generally undeveloped. The pupil is unable either to see great detail or to grasp relationships that exist among the minutiae of the subject. As the story told by the pupil's senses is vague and inaccurate so the pictures of his incipient imagination are erratic and fanciful. He must therefore deal with larger masses than are necessary with the trained student of science. The sights must be more vivid, the weights heavier, the relations more striking, the movements more pronounced, and the functions more obvious. In natural science the better-trained student discovers minute details and recognizes more

delicate relations. It is upon these facts that a true system of gradation in nature-study and science must rest. The attempt is usually made to establish grades by changing from one branch of the science to another and by the introduction of new and often unrelated subject-matter. This is done partially on the theory that repetition of the same thing becomes tiresome, which is true, and partially on the theory that, to keep alive the interest, the subject must be changed, which is not true. Nothing could be more detrimental to the genuine development of the pupil than the continual snapping of his thread of interest which is involved in the customary plans of gradation. The materials and phenomena of nature as subject-matter for study do not in themselves actually change; the continual and growing interest *in the same thing*, therefore, must always be preserved.

Nor is the distinction between nature-study and science, sometimes made, that the results in the latter may be more quantitative than in the former, a valid one. Such results in nature-study are possible and proper in any particular field when the student of science would find them desirable, and necessary. For example, in all study of physical force there is but one line open to the student who attempts to investigate, whether he is six years old or sixty, and that is to find out its value; this can be done only by measuring it.

The pupil very soon exhausts the qualitative aspects of such a subject, if indeed he has not already done so before he enters school. By this it is not meant that the pupil from the beginning must be asked to run down the result to the last decimal point in an indefinite series. In the outset it may involve none of the usual units at all. He may get the result in terms of which he can himself lift or push or pull, or otherwise physically accomplish. It is only then that he actually finds the need of the unit, pound, foot, gallon, etc.; it is as these gradually become definite in his mind that the fractional part has any value to him.

Where the average student of science might be able to develop the picture he seeks by the analysis of a single leaf, or of a drop of water, or of an ounce of earth, the beginner in nature-study must use bushels, gallons, or pounds. There are two reasons for this: first, the pupil's undeveloped imagination must picture in the large — he cannot think in grains of sand; and second, because, unskilled in manipulation, the liability to losses during experimentation with

the small quantities, enormously increases the percentage of error. True nature-study, therefore, is natural science, and its methods are strictly scientific.

It is not here sought to establish merely an identity of terms. Failure to recognize the true relation of the different parts of the subject has helped to emphasize the break that is already too pronounced between the elementary and the higher schools. Believing that there is some radical difference, the high-school teachers, as a rule, make but little effort to prepare a course of study that substantially continues the work of nature-study. The consequent abrupt change of method and material simply adds to the loss that the pupil suffers in other directions in this transition stage. The study of nature is the same, regardless of the age of the student. It will be a great step in advance when all teachers recognize this, and so plan the course of study that the pupil will not find it necessary to unlearn, ignore, or forget what he has learned in earlier stages. Every step taken should be a substantial preparation for the next throughout the course from the kindergarten to the university. This plan would also immensely strengthen the elementary teachers, and give stability, tone, and dignity to the work that it has seldom yet assumed. No teacher can put the best into his work when he feels that he is engaged simply in "busy work," which must serve as entertainment, at least, for the moment. It is not so in other subjects, and this fact contributes not a little to the strength of the position they hold in the curriculum. Every scrap of history, for example, that the pupil learns anywhere in his course is accounted for as he passes from grade to grade and from the grades to the high school. But not so with science; some misguided high-school, and even college, teachers have gone so far as to say that they would prefer to have their pupils come to them with no elementary work — a most preposterous position to assume. When the teachers from lowest to highest feel that all the good work they do will receive due recognition; when each understands that the true elementary work is as essential and fundamental as the more refined which is done farther along, then for the first time shall we be in the proper attitude of mind to develop a science course that will at once add strength to the curriculum and be a valuable contribution as a means to the development of the pupil.

III. THE NATURE OF OBSERVATION.

One of the serious obstacles in the way of securing the best results in nature-study is that few teachers fully understand the nature and function of true observation. The primary reason for having introduced this study, as well as its ancestor, the object-lesson, into the school, was that it offered a direct means of sense-training. It is generally understood that sense-training is peculiarly necessary in nature-study, but it is not so clearly recognized that all education finally rests upon it.

Education depends upon observation.^v Whether it is in the domain of natural science, where, obviously, knowledge is gained by presentation of objects and phenomena to the senses, or in the field of history, where the lessons are to be interpreted and applied to life in its present condition, observation is of fundamental importance.

The most serious mistake made in dealing with the subject of observation is that of treating it as though it were wholly an affair of the senses. Educative observation depends not more upon the senses than it does upon the mental attitude of the observer. It is quite as much a concern of attention as it is of eyesight or hearing. It is the function of observation to furnish data; these data form the basis for determining relations—ultimately the mutual ~~relations~~ of form and function. The great fault to be avoided therefore, in planning and conducting work in observation, is that of insisting upon presentation of objects or parts of objects that make no appeal through either their function or their form. When this is done, it is inevitable that the interest must be spurred on by factitious means which never come from honest purpose and never lead directly to real knowledge. Through this mistake, chiefly, arise all the difficulties pertaining to the various forms of expression.

Observation is the mother of inference; given the former, the latter is inevitable. Nothing points more clearly to the distinct personality of each human being than the fact that no two persons will make exactly the same inference regarding an object which they observe in common. Each observes from a point of view that is slightly different from that occupied by the other, and his inferences vary accordingly. This may lead to endless contention; but discussion respecting the meaning of facts is always healthy until

those engaged refuse to repeat their observations that their inferences may be corrected. The natural test for the extent and correctness of an observation lies in the expression which the individual is able to give respecting it. While it is not uncommon for one to say that he sees and knows more than he can express, it is doubtful if this is ever true. The technique of expression in all its forms is exceedingly simple. For instance, in expressing himself through a drawing, the pupil is required to do so by means of lines, straight and curved, which he can draw with little or no trouble. The real difficulty lies in putting the lines together at their proper angle, and in their right relation. But this does not belong to the technique of expression; the inability to represent by drawing must be referred, therefore, to the fact that the image is indistinct as a result of insufficient observation.

Again, in language, it is possible to describe things, most complex, by the use of words that are employed in common speech; yet it is not uncommon for the pupils to say that they can see more than they can tell, although their ability to talk may be beyond question.

In modeling, the clay is most plastic. It readily yields to treatment; but there are comparatively few who can bring it into a form which corresponds to the object observed. This is clearly not the fault of the material used, nor of the ability of the pupil to mold it; but the difficulty lies rather in an imperfect image that has been obtained through faulty or deficient observation.

The accuracy and the extent of an observation depend upon the purpose which controls the one who is making it. It is usually true that the desired knowledge concerning an object may be obtained through a partial examination, and the observation upon this point will be clear in proportion to the importance of the knowledge. All other knowledge of the object, which is absolutely necessary if we are to have an image of it clear enough to enable us fully to represent it by any means of expression, is weak and defective because the observation has not been intense.

Drawing, painting, modeling, etc., are difficult, therefore, because they require an accuracy and extent of observation which is not considered absolutely necessary by most people. For example, one may know, for all practical purposes of his life, the house in which he lives, and yet he may be utterly unable to represent that house

in a drawing. That is, while he may know the proper number of windows in the front, he would fail, perhaps, in getting the due proportions of each window, and this would be because that particular observation had never been called out by any function that the house or window had performed for him. The window allowed light to come into the interior, and he learned to know it from this function, but he learned nothing more.

So in the study of a tree. The lumberman recognizes a tree by signs, most superficial, because his knowledge may end with knowing the kind of wood. The nurseryman by a glance merely at the fruit recognizes the different kinds of apple trees in his orchard. Both, however, might utterly fail in an attempt to draw the tree, because its function, so far as they are concerned, has not demanded that close and specific observation of form which must precede any drawing.

The fact seems to be that most people see just enough of an object to enable them to dodge it. Very much observation, so called, results in nothing more than a mere consciousness of the *presence* ✓ of the object. No image of educative value is formed. It will be a surprise to anyone to scrutinize closely the impressions received from an object, even after looking steadfastly at it for some time. He will find that he has been impressed chiefly by those characteristics and properties which indicate a particular function. Other characteristics and properties, no matter how important, lie indistinctly in the background of his consciousness, and it requires considerable effort, on returning to the observation, to bring them to their proper relation in the image.

Observation, therefore, does not become a vital part of the educational process because we wish to train the senses, but rather because we wish the senses to train the individual. They can fulfil their mission in furnishing data regarding the outside world only when the mind has been prepared through the impulse of a strong motive to receive them. The value of observation cannot be determined, primarily, by the character of the object presented, but, rather, by the attitude of mind which the pupil brings to it, or which the object before him can induce and control. Like all other educational problems, observation finally resolves itself into one of purpose or motive. There is no escape from this, and the only way to have it

perform its proper function in nature-study is to be governed by the appeal which a generous presentation of nature makes to the child.

IV. IMAGING IN NATURE-STUDY.

The direct purpose of observation is the development of an image. That it often falls short of this is a fact which will largely account for lack of interest in study, muddled thinking, and waste of time in education. Until an image of the thing desired is clearly formed in the mind, it is useless, and worse, to attempt to take the next step. Until this is done, in fact, there is no next step to be taken. To overemphasize the importance of external presentation, and to underemphasize the importance of the resulting mental product, is the mark of much poor teaching. This mistake is largely due to the intangible and indefinable nature of the image which in itself is the mystery of mysteries.

When an object or a physical phenomenon is presented to one or more of the senses, an effect is produced that in no conceivable manner can be said to resemble the cause. The phenomenon of vibration derived from a blow by a hammer striking some object may be traced along purely material channels, and its rate of movement is but a problem in mathematical physics. At a given point, however, its physical identity is lost, and in its stead there flashes out a mental phenomenon which remains. Assuming the integrity of the senses, each normal individual must bear witness to the constant correspondence between the physical presentation and the psychic result which is called an image. It is not properly an image, though, if there is associated with this word its ordinary meaning. An image is a likeness or a counterpart. The mental image is not a *likeness*, but a result which is remarkable in its unlikeness to the cause. In the process of living, during the conscious hours there is a continual effort, first, to interpret these psychic results — that is, to refer them to the proper material source; and, second, to organize them — that is, to discover by what relations they are associated. These operations are to the end that one may obtain his bearings and preserve his proper place in the scheme of creation. The process of education is the systematized attempt to economize this effort. It accomplishes its purpose only as it keeps unobstructed the pathway between the physical and psychic phenomena, and so far as it discovers methods of interpretation and

organization that can be applied under the proper motive in dealing with psychic results or images.

Mental images, although bearing no resemblance to each other, may be considered as related when they can be referred to the same external source. The sound of the hammer striking the nail, the appearance of its falling through the air, the sinking of the nail into the wood, all give rise to images, that it is impossible to compare with each other; yet they are related, since they are referred to a common cause. When the psychic results of the sight giving color, and of the sight giving the effect of the blow upon the nail, and of the sound giving the nature of the substance, are interpreted as belonging to the same thing, the hammer, they become organized at once as the related parts of the image of the hammer, which has a certain form, weight, and substance. Psychic results may be produced from outside occurrences which follow in immediate sequence in time, or which may take place simultaneously; yet this time-relationship alone will not admit of their being organized into an image in the educative sense. As the hammer falls, a bird may fly across the field of vision; but the psychic result of the latter bears no educative relation to those derived from the hammer.

In nature-study, the landscape, embodying the entire field of observation, presents itself to the beginner as a great composite of confused parts; and to most people, perhaps, it always remains so. It should be the aim of instruction to assist the pupil to refer the separate and more or less confused mental impressions to the appropriate source, and, as this is done, to organize those referred to the same source into a clear and definite image. The landscape is revealed to the observer through its color, the initial interest being roused through the æsthetic sense. Everything, therefore, which involves color can be referred to a common external source, namely, light. All color-impressions, consequently, become organized in the mind, since they are related to a common cause. Whether it is the foliage of a tree or the decorative colors of a room, the questions arising in both are solved by this relation to the one thing — light. Still further, in plants many of the myriad varieties in form are nothing but inextricable confusion until their relationship to light is recognized; then the seeming confusion of forms becomes an orderly array. Even two structures so extreme in their unlikeness to each other as a leaf and the human eye become related,

from the fact that each represents a concession of the organism to the same controlling cause found in light. A large number of landscape phenomena, therefore, may be grouped together, from which there will be formed an image of related parts representing the effects of light. Another group of phenomena will be referred in the same way to heat, another to moisture, another to soil, and so on. The channeling of the grass blade and the bladdery vesicles of submerged plants as isolated facts are of little importance. But when one is recognized as a dew-spout and the other as a swim-bladder, and that both are an attempt to make friends with water, they become the organized parts of an image that is fundamental in the study of botany. Imaging thus begun opens the way to endless study. Simple enough in the outset to be clear to the child, the last step in scientific research is but the latest attempt of the trained mind to define more clearly the same image.

The chief reason why observation is slow and tedious is that sufficient aid in defining the image is not given through adequate expression. Expression is usually confined to one or two modes, whereas observation furnishes the data for a many-sided image which may need all the modes of expression to define it properly. People are continually wrestling with *form*, but they have almost no training in the development of form through the production of a model. They are continually called upon to distinguish colors, but expression through color has been practically unknown to most adults of the present time. Even in oral and written expression the pupils are enormously delayed by being compelled to deal with these modes in the beginning from the side of technique rather than from that of content. It seems to require endless time for teachers to learn that it is content which furnishes the motive to define an image, that must control technique in every form of expression. To attempt to teach technique beyond the demand of image-growth, or apart from it, is both to destroy the growth and defeat the real purpose of art-study. Even in most schools where the various modes of expression are employed the desultory character of the work growing out of and coupled with a corresponding desultory kind of observation tends to dissipate, rather than to conserve and strengthen, the pupil's power to image. If observation is of the highest educational character, the imagination is constantly called upon to arrange the different parts of the growing image in the

proper order. Nature-study then becomes more than a simple amassing of facts; it involves also the organization into a rational and consistent whole. Science itself is nothing more. This kind of image-growth is educational because it is rationally continuous. No other kind of imaging is worth the trouble. The demand for details by an ever-incompleted image impels that research which always marks the true student of nature.

CHAPTER II.

THE SCOPE OF NATURE-STUDY.

I. FIELD-WORK.

With that conception of nature-study which has already been set forth it follows that the children must lay the foundation for their knowledge by direct contact with nature under normal conditions. This end is to be attained by a variety of investigations, which for convenience may be classed under the head of field-work. It is not intended, here, to limit this to the mere collecting tours, but rather to expand the meaning so that it may include all the great aspects of life outside the schoolroom which may be conveniently studied. Field-work of this kind is usually done so irregularly, and with such a lack of well-conceived plan on the part of the teacher, that it often falls quite short of having its full educative value. The following principles, in accord with which outdoor work may be conducted, are offered as the basis of a plan that may be generally applied to the different aspects of field-work.

1. *Each study should begin with a comprehensive survey of the landscape as a whole.*—In thus treating the landscape, it should not be regarded as a great composite of confused facts, but as an organism of tremendous strength, having the relations of its parts balanced with the greatest delicacy.

Evidence of its strength, for example, may be witnessed in any garden or cultivated field. In the area of cultivation the foster-plant is brought into competition with wild ones that, in their own way, have made themselves possessors of the ground. It may be assumed that the conditions are generally favorable for the cultivated plant, or man would not have selected it for this particular spot. In addition to this, in most cases it requires the vigorous use of the best implements that the wit of man has yet devised to enable the plant to maintain itself against the onslaughts of the aborigines of the soil. There is not a cultivated plant in existence that would dare match itself, single-handed, in a race against the common garden purslain or pigweed on its own ground. As soon as a child

is old enough to follow the growth of plants through a single season and to take some little part in their cultivation, he cannot but be impressed that this mighty support which nature gives to her own is something more than accident. In his realization of this fact is a stimulus that will drive him to examine, according to his skill, the leaf, the root, the stem, the seed, the soil, and all that has contributed to the victory of the one and the discomfiture or defeat of the other.

The delicacy of the balance that exists among the parts of the landscape is scarcely exceeded by the sensitiveness of the poise maintained by the organs of the living body. The slightest change anywhere is sufficient to destroy the balance abruptly and cause a readjustment of all the adjacent parts. The drying out of a marsh is marked year by year with a gradual reorganization of the flora and fauna. The falling of a tree in the midst of a forest allows a few shafts of light to fall unhindered upon the ground. Forthwith the shade-loving plants are driven from the spot, and grass sets in and works its way in all directions, literally, according to its light. The gradually changing course of a stream is continually reorganizing the life in the valley. The advent of a stray plant or seed may light the torch of conquest. Driven almost to desperation by the chance introduction of the Russian thistle, the farmers of the Northwest have besought government aid as they would against an army with banners.

Such a presentation of the landscape, by its simplicity and breadth, will not only attract the attention and enlist the interest of the children for the time being, but it will also place them at once in line with the best materials and methods of science.

2. In proceeding from the landscape to its details, the study should be directed to its related parts, not merely to unrelated fragments. From the whole to the parts in this instance does not mean from the whole to the pieces.—Almost any stretch of landscape will present some evidences of an underlying unity. Within the general scope, certain aspects or phases in its appearance will indicate minor related unities. Thus, in general, a landscape may include a valley or a stretch of prairie, each having a certain completeness. Within this there will be slopes, or marshes, or ridges, or lakes; and each of these aspects will be found to stand as secondary centers of organization for the plants and animals; and, still further, each

minor center may be resolved yet into others, which have an organizing influence within the whole. The rational study of a landscape involves nothing but the study of the *relations* that exist among its parts.

The course of a stream is the dominating organizing influence in a valley. But each slope, especially if the stream lies east and west, will have an organizing individuality of its own. The writer recalls two such slopes which supported the two species of a genus of plants. Each species, however, was confined entirely to its own particular hillside, though the valley was not more than a quarter of a mile in width.

Each slope will present in itself different centers of organization. Even the casual observation of children will show that it is something more than accident that segregates the plants with the fine capillary roots on the sandy crest, and that it is more than coincidence that groups the thicker-fascicled roots in the alluvial bottoms.

Even a single living tree becomes an interesting center for study. It is beset by many things that without it could not possibly exist. The green algae on one side and not on the other speak of the contrasts of heat which it affords. The moss clustering at its base, and ascending the stem in a thinner layer, accurately measures the area of moisture furnished by its capillary bark; while the papery lichens take undisputed possession of the dryer areas above. Its dried and riven bark furnishes protection for crowds of insects that find shelter in the crevices, and these in their turn become the chief attraction for a vigilant host of birds. Even when dead and prostrate it is a center of no less activity. Beset by a new race of animals and plants, it remains a determining influence upon a considerable community until the last vestige is returned to the original elements. Here again a broad presentation brings the pupil at once face to face with nature at work. He acquires some notion of the dynamism in creation, which is the beginning of wisdom.

3. *The landscape as a composite whole presents several series of aspects, each of which includes a well-defined succession of events.*

— These may be described as:

a) The transitory and somewhat irregular changes; as, for example, those caused by the movement of a cloud over the sun, the passing of a storm, the work of a flood, etc.

b) The seasonal: those which accompany the changes of temperature and other modifying climatic influences.

The observations under this division should take several directions:

(1) Toward a determination of the amount of sunshine. With the younger pupils, the variation in proportion to the day's length and to the amount of cloudiness can be understood. With older pupils, the relative values of sunshine, also, determined by the varying slant, can be calculated from measurements easily made.

(2) Toward a determination of the temperature of the air, of the soil at different depths, and of bodies of water.

(3) Toward a determination of the amount of moisture in the soil at different depths and in the air.

(4) Toward a determination of the amount of rainfall, and the distribution of rainy days through the year.

(5) Toward a determination of the amount of water, ash, and other constituents in plants at different periods of growth.

(6) Toward a study of all the habits of plants and animals — *natural* germination, growth, maturity, nesting, feeding, migration, etc.— that are associated with the season and conditioned by it. The presentation need not be in accord with any fixed order; the topics indicate merely the general observations that should be made.

c) Those operations resting upon profound causes, which, gradual and subtle, effect radical and permanent changes. Thus the slow drainage of a marsh (it may be for the purpose of agriculture), the denudation of the country of its timber, the encroachment of the water upon the shore or coast line, the shifting of the sand-ridges by the wind, the breaking of the shelving rocks in the cliff, are all changes which almost imperceptibly, but profoundly, affect the balance of parts in the landscape. These changes differ from those first named in being more gradual, and from those mentioned second, in being irregular. Whatever there may be of recurrence is at intervals that seem to be variable.

4. *The study of landscape details, therefore, means the following of each minor unity, through each of these series of aspects as the changes occur, with due regard to the relations of the various aspects to each other.*— For example, a tree presents certain phases of life which are due to the daily and hourly shifting influences of sun and shower, of light and darkness, etc.; these phases are

marked mainly by the constant play of shade, tint, and color. Still further, other phases appear that correspond with the month and season; these show themselves in bud, leaf, flower, and fruit. And, finally, there are those phases which present themselves through the accumulation of years that are found in the tree's maturity, its decline, its death, its decay, and in the distribution of the elements of which it is composed. A true study of the tree will consist, therefore, of the thoughtful consideration of all the different phases of life which it presents, with due regard to their relations to each other and taken in connection with the underlying causes. The results of such study will always appear as a rational and coherent story, whether it is told by tongue, brush, spatula, or pen; but the description can be even approximately complete only when all are used. Every feature of the landscape, whether it be a plant, an animal, or a rock, must be studied in the same general way.

5. The different series of aspects presented by the landscape make their appeal according to a well-defined order which is determined by the age and experience of the pupils.—The series of fleeting aspects possessing a lesser, though subtle, significance is strikingly beautiful, and they are generally most attractive to children. The appeal is made chiefly to the æsthetic sense; and, as these phases manifest themselves largely through changes in shade and color, the mode of expression must correspond.

Those aspects, which are included in the regularly recurring events of the season, have a deeper significance, none the less beautiful; but, in their relation to man, they appeal strongly to his notions of utility. Through this appeal, which reaches the mind gradually as it matures, they call forth from the human being those inventions, arts, devices, measurements, and calculations which have enabled man to utilize the forces of nature.

The series of aspects, including those gradual changes that can be timed, perhaps only by ages, enlist the profoundest interests of the mind. No comprehension, even approximately adequate, is possible without the aid of a great perspective of experience which has been developed through an intelligent contact with nature. The real significance of these larger aspects of creation can never fully appear. They make the appeal only as the mind ripens, and they become intelligible only as it acquires the disposition and the power to arrange, in accordance with the rules of philosophy, the facts that have been gathered and treasured by sense.

In a study of a landscape, therefore, the teacher and pupil should seek for the dominant influence which organizes it into a great unity. For example, in the area in and about Chicago the center of influence at present is the lake, while one a little more remote and far-reaching is the glacier. Everywhere the country presents the character given to it by the lake, present and past. The sand, the pebbles, the small lakes and pools all testify to its work. But within this area are minor features which themselves operate as centers of influence. The trees, for instance, speak of the sand-ridges everywhere; while the rushes, reeds, flags, sedges, and coarse grasses speak of the more or less submerged lowlands.

The innumerable colonies of animals and plants which infest these minor centers tell of still further contrasted conditions, which differ from each other in slope or soil or sunshine, but mainly in water supply. The chance excavations in road-making or for buildings reveal something as to what the conditions have been in the past. The rapidly occurring changes which accompany the settlement of the country—the displacement of the fish, the tadpole and frog, the mussel and snail, the heron, rail, snipe, and bittern, by the earthworm, the toad, the snake, and the lark; the substitution of the fine meadow grass for the water lily, the bulrushes, the flags, the cattails, and the sedges—all give a glimpse of what the future may be. *To decipher the story of the past, so to interpret the present that we may plan for the future—this is the fundamental purpose of all field-study.*

II. NATURE-STUDY AND MAN IN THE LANDSCAPE.

One of the most important lessons of field-study is to show how man by slow and progressive stages avails himself of the various natural features of a given area. The home life, the industries, the transportation of products, the location of towns and cities, are in the immediate control of the natural features. Among these the most important is water supply, and this in turn is closely related to the nature of the rocks. A limestone region usually abounds in springs. The water, filtered and cool, is a prime necessity in the human life. Hence it is that in such a region the location of the home, the fundamental unit of our social and political system, is determined largely by this single physical feature. The pupils can easily canvass the area within reach of observation and

note how uniformly this fact prevails. But the springs, still further, do much to determine the topography of a region. The general land-slope determines the direction of the water-flow, but the water and the nature of the rocks determine the channels and the character of the sloping sides of the valley. These, in turn, fix the accessibility and the immediate surroundings of the home which so powerfully react upon the life and character of the occupants. If the site of the home is unfavorable from the æsthetic or artistic standpoint; if it is beset by features which render it difficult of access; or if in any way the physical features make the labor for a livelihood so onerous and taxing as to leave little time for the rest and leisure so necessary for reflection, reading, and study, the character of the people who occupy such homes will be distinctly affected thereby.

The location of the roadways, too, are closely connected with the physical features. They follow, as far as practicable, the ravines and valleys that have been caused by the streams because of the easier grade. It reduces the cost of transportation to recognize this particular point. When it is necessary for the roads to ascend the hill, it is interesting to note how with increasing intelligence the grades are carefully surveyed and improved. In locating the railroads, too, the same features are observed; the easiest grades are along the streams.

The natural lines of transportation determine also the location of the villages, towns, and cities. The convergence of even but two country roads to a common point is often enough to establish a store, with perhaps a post-office and a cluster of houses. The two roadways bring to this point the merchandise or products of two or more different sections, and the opportunity for trade is created. The amount of barter and sale depends upon the soil, the natural products, and the extent and character of the thoroughfares. If the latter are two rivers, for example, of navigable size, a city is the inevitable result. These are enormously reinforced, but never quite replaced, by railroads that give speed to the movement of goods, but always at increased expense. The streams of a country are closely associated with the industrial history. They furnish the earliest and cheapest power for various kinds of mills. The course of almost any stream will show a number of generations of these which have come and gone keeping pace with the settlement

of the country. First, the old overshot wheel, cumbersome and wasteful of water, then the turbine, and finally the steam-engine supplanting both—each serving its day and purpose; each represents a given horizon of ability that man has reached in availing himself of the natural features of his environment.

The location of the timber reserves, of the quarries, and of the mines bears a direct relation to the value of the soil for the purpose of cultivation, and to the natural transportation facilities. The houses, too, show an interesting evolution. The earlier ones were of wood—log cabins—or sod dugouts. These are often followed with stone buildings, when quarries of good building-stone are a part of the country's features. These are still further succeeded by either wooden ones of finer worked lumber, or by cut stone, or it may be by imported brick and tile. This study tends to bring out the fact that education and training do not, as often supposed, enable man to live at variance with nature, or in a measure independent, or even at war with her. They simply show how man learns to avail himself more widely of the benefits that nature is ready to bestow upon those who are willing to consider themselves a part of the great whole. This is the fundamental motive for nature-study. It can be brought to the experience of children of the earliest teachable age; and, once fixed, no artificial stimulus to observation will ever after be needed. The study of nature then becomes for the pupil a personal matter. Its problems are personal ones that make their appeal directly to him. There is an abysmal difference between learning *about* nature and learning *from* nature. Both methods of study may have outwardly the true scientific form; but it is the latter only that is really educative. In the former process the student finds her inert, spiritless, and dumb. In the latter she becomes active and eloquent, and almost conscious in her meeting at every point the gradually awakening needs of man.

III. THE FARM.

As a smaller or minor unit in the general landscape the farm may be considered as practically a natural division. When the topography varies at all, the farm boundaries will usually follow certain natural lines. For example, it is difficult for a man to farm if his land lies on opposite sides of a deep ravine or sharply divided ridge. The effort is made, then, in buying and selling, to recognize the

fact, and so to arrange the lines that each farmer may get land that can be worked to the best advantage. Farmers who do not recognize these general facts soon find themselves in possession of undesirable areas, and consequently they suffer actual financial loss and physical discomfort from their failure to observe the character of the natural features.

The different soils and locations are always considered in the choice of crops. The lower lands are chiefly for grass; the higher for grain; the warmer southern slopes for corn and early pasture; the cooler northern hillsides for wheat and oats; the alluvial bottoms for gardens and vegetables, and the well-drained uplands for orchards and fruits. This distribution does not represent the arbitrary choice of man, but rather his implicit observance of the general facts of temperature, moisture, and soil. In short, all the rural occupations of agriculture, horticulture, and grazing should be determined upon beforehand by a scientific investigation of natural conditions. It would be preposterous for a man to erect an elaborate and expensive gold-mining plant on a spot that had not been thoroughly prospected. But many thousands of dollars are spent and endless disappointment results from a failure on the part of farmers to "prospect" similarly their farms before they begin their work. These financial losses, and the infinite social and physical discomforts of country life, will not be relieved until people are recreated by that rational study of nature which it is the function of nature-study in the schools to stimulate and direct.

It is important, too, to study the relation of the farm as a unit to all other sources which minister to the comfort and happiness of people. The country roads which radiate in different directions from it as a center are but the beginnings of lines that may connect it with the ends of the earth. Along these simple paths of transportation may begin the flow of aid, comfort, and blessings to people of every degree of need and in every station in life. This should be made in the lives of the children a personal matter. Upon their personal effort, their personal industry, honesty, honor, and integrity, depends the welfare of those more or less distant people to whom they are thus related. The fact that their productions are to be consumed by people in a remote quarter of the earth, savage or civilized, instead of by neighbors on an adjoining farm, lessens not one whit the obligation that such productions shall be prepared as

honestly as nature can grow them. A pound should mean precisely a pound, and the contents of the package should correspond exactly with the claims of the label. The pupils should be taught that there are practically no limits to which the distinctively fine products and the distinctively honest preparations may not become known and honored. Inward, toward themselves, over the same routes flow the contributions demanded in their daily lives; and they learn in a different way to appreciate those qualities of character in others which others are glad to recognize in them. Herein lies the root of finance, and here is the basis of social and political structure.

↙ The financial condition of the farmer depends upon the ratio of his sales to what he buys. His wheat, corn, cattle, and minerals he transmutes to gold; if this be not used in part for those imported products which he naturally requires; if it be hoarded and put out at usury, instead of being devoted to means of perpetual intellectual attainment; if through it he become not a source of greater general influence, then the very last and highest lesson that nature has to teach remains unlearned, and ultimate disaster, if not to him then to his children, is the inevitable result. Here again, in this approach to nature, we find the motive for the study. It is not remote; it is immediate. It is not vague; it is definite. It is not something which can be deferred; it is that from which the stimulus to the study must proceed.

IV. THE GARDEN.

A most common and useful adjunct of the home is the garden. It offers an approach to nature that is fascinating both to old and young. The fresh and odorous earth; its swarm of worms, grubs, and insects; the birds rejoicing in the bountiful food supply; the spontaneity of the plants, incarnating as they grow the mysterious force of the sunshine; the appetite whetted by the gradual appearance of the vegetables that bring release from the monotonous and heavy menu of winter; the flowers that, in patches, rows, and clumps, give changing color to the whole—all these combine to draw man irresistibly from the usual daily routine and to place him once more under the benign influence of primeval nature. The children are charmed with the opportunity to do such work; they are not fretted by the feeling that it "does not seem to be like school," which is always the source of more or less worry to the older ones, to their teachers, and to the parents.

The many vacant and desolate-looking school-yards still to be seen in both country and city; the door-yards of thousands of houses that almost cry out against the indignities of rubbish that are thrust upon them by careless and ignorant people of vulgar tastes, all testify how far away we still are from knowing how to utilize effectively a most potent means in education.

There are few problems in the plant world that are not presented in the garden in a form fit for study. It is true, too, that animal life is but little, if any, less well represented. It is a perfect laboratory in which to study the subjects of temperature, light, moisture, soil, and air that are the fundamental conditions of growth.

The chief reason why the school garden often falls short of the hopes of those who plan for it is that its projectors usually greatly underestimate the attention and labor which it should receive. Gardening is one of the highest arts, and there can be no more serious mistake than to suppose it is only necessary to plant the seeds and let them grow. Bacon said long ago that men come to build stately sooner than to garden finely.

It should be remembered in the outset that, in several senses, a garden represents a war with nature, as the latter term is usually understood. In the first place, it is commonly made up of plants that have been drawn from remote parts of the earth, often from places having diverse climatic conditions. These are all expected to grow within a limited area, for which naturally, they are not specially suited, and their "personal" objections are supposed to be overcome chiefly by artificial means and by processes known as cultivation and forcing. Cultivated plants can never be made to forget the ancient haunts of their ancestors. The one, therefore, that flourished best in primeval times in marshy soil will never feel quite at home in a dry, loamy garden alongside of a plant that has been enticed away from a sandy ridge. Nor will a plant which has been kidnapped from a warmer climate take kindly to a yoke-fellow that has spent countless ages in learning how to outwit the north wind.

↖ In the second place, almost every cultivated plant may be regarded as either a freak or a genius; usually it exhibits all the eccentricities of both types. Man, in looking selfishly after his own ends, in many instances has seriously interfered with the ancient and prosaic process of seed-production, which comprises the whole

of a plant's ambition in the wild state. Even where the want of the gardener and the need of the plant meet in the same thing, as in the seed, in some underground forms, and in many flowers, these parts are forced by the tricks of cultivation to a point in size and number that the plants could not sustain for a single season if they were left to battle alone with the elements and their natural enemies. Thus the potato, as well as the turnip, parsnip, and other roots; the cabbage, kale, kohlrabi, and other leaves and stems; the peas, beans, and other seeds, in their present marketable form, represent the ambition of the gardener rather than the needs of the plants themselves. The distortion and exaggeration of the normal form found in the majority of cultivated plants represent with fair directness the modification of the natural conditions under which these plants are produced. If members of the vegetable world were endowed with reflective powers, they would certainly view some of the results obtained by the gardener with alarm; as, for example, the production of the "seedless fruit" and the double flower, in which the original purpose of this particular part is entirely defeated.

Again, it should be remembered that cultivated plants are not only herded together without much regard for their natural affinities, but they are set down in a place which in most cases was pre-empted ages ago by other plants that have learned thoroughly how to take care of themselves on that particular spot. It has been part of the business of these plants to kill off without mercy all members of any weakling tribe that might appear among them. The enormous strength with which these "natives" literally hold their ground is evidenced by the fact that the gardener's favorites must be aided and protected by the active and vigilant use of the best instruments yet devised for the extermination of weeds in order to carry the cultivated crop to a successful issue. There is no more striking illustration than this of the trouble one may expect, if he interferes with one of nature's established ways.

In designing a garden in connection with an ordinary school, therefore, three things should be observed: (1) select plants which do not represent a wide diversity of habit, unless the garden will lend itself to a variety of conditions as to water, sunshine, and soil; (2) select plants which represent fairly well-established stages of cultivation; that is, avoid the so-called novelties, unless there is

ample provision for unusual attention; (3) allow plenty of time for systematic care; odds and ends of time will not do; the weeds do not grow by fits and starts.

For the æsthetic effects of the garden most people will depend upon the flowers and ornamental foliage plants. Several arrangements may be suggested which will commend themselves according to the taste and opportunities of different individuals. The following is a description of the garden planned and cared for by the pupils of the University Elementary School:

The garden occupied a plot of ground lying on the south side of the school building, 55 meters long east and west, and 30.5 meters wide north and south. The south side and the ends were inclosed by a wire netting 6 feet high, and the north side was bounded by the schoolhouse.

The main cultivated portion was a strip near the south side 48 meters long and 12 meters wide. In the middle of the strip a circular bed 12 meters in diameter was devoted to flowers, one-eighth of the area being assigned to each grade. A bed in each corner, 6 meters square, was sown with spring grains. The four remaining plots on either side of the circular area, each about 6 meters square, was assigned to the grades as marked, and they were planted with vegetables.

Near the building there were nine beds, in which about one thousand tulip bulbs were planted in the fall. After these had finished blooming, their places were given to plants that bloom later in the season.

On the walls of the building, between the windows, preparations were made for planting a great variety of rapidly growing vines, which, it was believed, would somewhat soften the glare of the summer's sun upon the treeless grounds.

At the inner end of each bed, in the circular plot reserved for flowers, there was planted a castor bean; at a suitable distance from this, moving outward, there was planted a calladium; next was a ring of salvias; then cornflowers, verbenas, and a border of phlox, or sweet alyssum. By this selection and distribution the bed had the features of ornamental foliage and flowers, which was made possible by its large size. The flowering began rather early and, by the choice of plants, continued until frost. The order

decided upon gave each different kind of plant a fair opportunity for growth.

The four adjacent areas on either side of the flower-bed—one for each grade—were devoted to plants selected for their economic value. Such plants were selected as would be useful in preparing the children's luncheons the next year. To this end each plot, 20 feet square, was devoted to one or two kinds of plants, and the grade caring for it was responsible to the entire school for the result. The plants chosen were beans, peas, potatoes, cabbage, carrots, parsnips, beets, tomatoes, turnips, onions, peppers, cucumbers (for pickles), and corn. Radishes and lettuce were sown in certain spots not available for other plants.

It was proposed to show, for example, the great debt of mankind to the *Cruciferae*. There is no part of the plant body that has not been developed in different members of this useful family for the food of man; thus, in the turnip and radish, the root; in the cabbage, the leaves. The *Solanaceae* were represented by the tomato, potato, and pepper, the innocuous relatives of the poisonous night-shade. The parsnip and carrot represented the *Umbelliferae*, and beets strove for the ascendancy with their wild and vigorous relative, the pigweed of the goosefoot family, or *Chenopodiaceae*. The peas and beans are the favorites chosen from the *Leguminosae*—an interesting family of plants, both useful and ornamental.

The four areas at the opposite ends of the garden were devoted to various members of the grass family—maize, wheat, oats, rye, barley, broom-corn, and sorghum; and a small strip was sown with flax. Later in the season some space was found for buckwheat, the most useful member belonging to that family of gutter snipes, the smartweeds. The same aspects for study were presented by the plants cultivated for their flowers.

In connection with this part of garden-work there are three interesting lines of study: (1) the original habits of the plant in its wild state, and its near relatives that now may be found growing wild; (2) the steps in cultivation and the conditions provided which have developed the cultivated form; (3) the nature, constitution, relative value, and distribution of the food-product thus obtained.

Another point of view from which the garden as a whole was studied is that of the actual problems which the different plants

must solve in the process of growth during different periods of the season. These problems are alike to all the plants cultivated in the garden, though differing somewhat in degree of importance. They arise mainly from the plant's efforts to establish helpful relations (1) with sunshine, meaning both light and heat; (2) with the soil for support and as a water reservoir, as well as for the sake of small quantities of minerals; and (3) with the atmosphere as a reservoir of oxygen and carbon dioxide as a food-supply.

The clew to a solution of the problems falling under (1) and (3) are found chiefly in a study of the leaves, including their mode of attachment, position, relative size, shape, margin, arrangement, structure, and movements. The problems involved in (2) are to be worked out through careful observation of the root, beginning when it leaves the sprouting seed.

Certain movements of the plants were shown by the various kinds of climbers that were trained up the walls of the schoolhouse. The amount of work done by the plants was approximately calculated from data gathered from growing plants under special conditions. Thus, the amount of water discharged through the leaves was found by growing a plant in a wide-mouthed bottle closed about the stem so as to prevent evaporation. By weighing at intervals, placing the plant now in the sunshine, now in the shade, the loss noted will be from transpiration, and the quantity of water can be measured out so that the pupils may see it. Plants may be weighed fresh, and afterwards dried and weighed again, then burned, thus giving an idea of the water and of the dry solid, and mineral matter built up during any given period of its development.

Again, the resources upon which the plant must draw for materials were investigated through a study of the soil, rainfall, temperature, slant and distribution of the sunshine. The gist of the whole study under this head is (1) to see how the plants suit their problems to the seasons: germination to the cool, moist April and May; the rapid development of the leaf and flower to the long, bright, hot days of June and July; and the filling up of the seed to the early autumn; and (2) to observe how they manage to resist the encroachments of each other and to use each other, as they all together take possession practically of the whole earth.

V. THE DWELLING.

Something has been said already about the relation of the home to the general features of the landscape. People as yet by no means fully realize how directly its great aspects affect them. This does not refer to the momentary effect upon the emotions, but to the power that such influences have upon the development of character. The constant presence of a great mountain range, studded with its cloud-capped peaks; or of a sweep of water whose surface, whether smooth or turbulent, is a constant reminder of the primitive forces of nature; or of the majesty of a river that rolls its way from hill to hill through a valley; or of a stretch of prairie whose vastness seems to lift and expand the arch of the sky into an almost limitless dome—the constant presence of any of these great elemental facts of nature insensibly impresses itself, especially in the early years of childhood and youth. In later years we become conscious that these raw materials, by the mysterious chemistry of life, have been transmuted into the strength, the refinement, and the subtleties of human character.

Realizing these facts, the outlook of a home becomes an important consideration. Farms are usually purchased with an eye chiefly to fertility of the soil, but no less attention should be given to possibilities of outlook for the dwelling. The site of a home does something to determine whether its occupants will be honest or dishonest; the way it faces will in some degree determine whether the family will be happy or morose. These facts are not the products of the imagination belonging to the domain of poetry; they rest largely upon chemistry and physics, and are the legitimate considerations of science. In its construction, from the arrangement of its rooms and windows so as to secure the maximum amount of sunshine, to the means employed for the disposal of garbage, everything should rest upon scientific principles. The character of the soil and subsoil determines its stability upon the foundation, and it also affects the drainage. In latitudes having long winters the questions of heating and ventilation are of paramount importance. To solve these problems, properly, requires a fairly liberal education in physics and chemistry. Most of the teaching and most of the text-books in these subjects, however, are still as hopelessly dull and remote as though no such necessity existed. Modern construction involves plumbing, gasfitting, and

electric wiring, all of which rest upon the very latest results obtained by experts in physical and sanitary science. Many houses may be so located that the water supply, delivered from a spring having a higher level, may be piped to all parts of the dwelling where it is needed. These and other conveniences, which soon become necessities, might have a place in many homes, were the instruction in the schools to take them into due account. The actual personal investigation into one's own home, with a view to understanding its relations to himself, is certainly as legitimate as it is for him to spend his time in the study of the red man's wigwam or the igloo of the Esquimos.

The study of the materials that enter into the construction of the dwelling opens endless opportunities for observations. The stones can be traced to the quarries and to the rock strata from which they were obtained, the bricks to the "yards" and to the sand and clay pits furnishing the raw materials. The processes of manufacture are easily understood, and may be duplicated by the pupils themselves. The use of wood and iron in the building, the strength of materials, and the means of testing the same open to the pupils the usefulness of mechanics which is one of the most interesting branches of physical science to children.

The lack of knowledge and appreciation of nature is not more apparent on the side of the mechanical and sanitary aspects of the average home than it is on the artistic side. Thousands of homes and schoolhouses too, that present an appearance of neglect and desolation might be made beautiful by a little thoughtfulness and care in the planting of trees and shrubbery. Landscape architecture is, indeed, one of the most refined sciences, drawing, as it does, directly from the fields of both technical science and art. It is especially close to the interests of children, because of the direct appeal which it makes to their æsthetic nature. But the neglected door-yards everywhere testify to the insensibility of the general public to the importance of this factor in the education of the children.

The dreariness of the exterior, as a matter of course, usually finds its counterpart inside the house. The waste of Sahara is not more lonesome than a house whose furnishing and decorations bear no relation to the lives of the occupants; that do not grow out of and bear the impress of the thought of those who live with

them. Instead of really contributing to the joy and movement of home life, such decorations introduce a stiffness that always exists between strangers. The parlor and "best rooms" become places to be shunned, not enjoyed, and the real available portion of the house for living purposes becomes narrowed down to those regions where the work is actually done.

This opens up at once the true function of the domestic arts. Instruction in textiles, manual training, modeling, drawing, and painting should at this point find easy entrance into the lives and affections of the pupil, and nature-study properly presented should furnish an inexhaustible supply of material and an endless variety in design. It is useless to try to teach the relation of nature-study to art until the pupils feel a need for the art—until they see a place for it and begin to picture in their imagination what it can do. The study of art usually begins in a gallery which is but a warehouse and most people grow old and die without once realizing that it can exist anywhere else.

Homes that are made more livable through a greater sanity of arrangement and decoration would react powerfully upon the social relations. In many otherwise good communities the people are not social because they dread each other's parlors; whereas, if their rooms expressed something of the actual joy that the people get out of living, they would add immensely to the pleasures of social intercourse.

This phase of home life offers one of the easiest and most obvious points of departure for the instruction of our pupils, but it is one of the last to be discovered. If teachers were to devote as much time to such instruction, were to bring to it the same enthusiasm, the same use of pictures and books which they now bring to the study of the houses of savages and of primitive men of other days, their own homes and home life and the general social condition would be almost revolutionized in a generation.

VI. THE CITY.

The most that has been said and written about nature-study has been done with direct reference to the country. The city, however, is no less a natural object than a tree or a fox. It belongs to the earth; it is as inseparable from it as a mountain range or a river, and it should be studied in precisely the same way. Chicago is

no less a natural feature than Lake Michigan. The waves that roll up on the sandy beach are not more natural than the stream of life that rolls up and down the streets of the great city. As in the case of the country, the study should begin with field-work. The location of the city, as a natural feature, in the landscape, is as truly a theme for nature-study as the clouds that float overhead. The widest possible conceptions of which the children are capable should be developed first by observation of fundamental conditions. The great congregation of people upon one spot has a general meaning that appears at once on the surface. Just as the single dwelling is built with due regard to the country highway and the village with regard to the "crossroads," so the city bears an obvious relation to the great highways of commerce. These all center in its markets, and from them again traffic radiates to the country. The location of the earliest dwellings and business houses will be found to bear some relationship to the primitive natural features which lend themselves to economy of construction, to sanitary conditions, or to business advantages. From these initial points as centers the buildings creep outward along the natural lines of least resistance. The surrounding farms gradually change their general agricultural character to more special forms of gardening, the raising of small fruits and other products to meet the immediate demand of the city. In their turn, these areas become suburban, and are finally absorbed, becoming secondary business districts that accommodate the part of the population that is now too remote from the principal centers. The transportation facilities follow the population and play an important part in differentiating the residence sections from those devoted to business. As the town or city is favored with natural means of communication with other points, it reacts upon the surrounding country to an indefinite distance, stimulating productive energy. With the increase in production of raw materials, the city is driven to take advantage of whatever natural features there may be which favor manufacturing, thereby diminishing labor and expense in shipping and acquiring additional profits from sales.

From the side of nature-study, the facts to be emphasized here are those which show the close adherence of man in his city building to natural conditions. Just as the root of a tree seeks this way and that for the moisture and the best soil, so the growing city seeks and finds its nourishment in equally elemental features. A

city so developed possesses the stability and the majesty of a mountain, and it bears no more relation to the sporadic growth of the illy considered "boom town" than the towering oak does to the made-up plant with paper leaves. The result of such study will be to unite the interests of the city and country in the minds of the pupils, not to separate them. The life of each will become less strange to the other, and every step taken will tend to develop and strengthen the bonds of sympathy necessary to a happy social life and to strong political existence.

VII. NATURE-STUDY AND HISTORY.

In adapting the general plan of nature-study here suggested to a particular region, it is evident that it will involve many interesting facts in history. Our country is so young that its history is comparatively simple, and the relationship of man to primitive natural features may be easily traced from the earliest settlements.

A study of boundary lines will usually show how the present farms have been derived from those of larger areas which were secured by original government grants. This will be true also of the township and county lines. The history of all boundaries, political or otherwise, will show the influence of topography and natural products, in which ravines and ridges play a conspicuous part.

From the first generation that devoted itself to pioneering and the rudest agriculture almost everywhere, there have issued those specialized occupations that mark at each step a close acquaintance with nature. Each occupation has drawn to it men of a peculiar type of mind and of a particular social grade from the Old World, and each has exerted a unique influence upon the education of the young. The undisturbed quiet of a strictly agricultural and grazing region has produced a distinctly different kind of man from the one developed in a mining or a manufacturing district. An area not easily accessible by natural lines of communication lacks the alertness and progressiveness in its people usually found in communities having freer communication with social and industrial centers of a somewhat different order. The effect of the occupation upon the intelligence of the workmen is simple and direct. It would be unreasonable to expect the same mental and moral character in a man who delves day after day in the gloom of the mines, performing an endless task, every day's part being

like that of every other day, that we should expect to find in the man who under better physical conditions performs work which at every moment exacts his individual and personal initiative. The great differences which are easily recognized do not arise because the one kind of labor is so much harder than the other; for both may make about the same drafts upon the sum total of human strength. They depend much more upon quality—upon the kind of reaction that they stimulate in the worker. Herein is the real reason for the long struggle for shorter hours in the working-day; it is not so much that the muscles may be relaxed, as it is that the mind may be released from the monotonous alternatives of the pick and shovel, and the rhythmic bang of steam-driven tools.

The short working-day will accomplish its true purpose only when the hours now largely spent in idleness shall be filled with some stimulating purpose that turns the energies of the individual upon some personal problem relating to the public good.

Mingling with the influences of the present surroundings are the traditions that in many instances go back to some remote spot in the Old World. The result is a general disturbance of ideals and a modification of methods that serve to add to the confusion which a great diversity of new conditions would of itself naturally induce. Add to this the theory of self-government, only imperfectly understood, but which by its very terms must mean the extreme reverse of what a large part of the people have been accustomed to, and there is no need to seek farther for the causes of social and political turbulence. The mystery concerning the origin of political parties no longer remains; the only wonder is that there are not more of them than already exist. The shifting of political boundaries in our country's history following, now one great natural feature, now another, is a very simple story that need not be detailed in this connection. The pupils should be taught to study the great drama, not as a spectator reviews the panorama of the stage, but as active participants. For most people history is an affair of the books; for our pupils it should be a matter of present concern and of personal experience. It is only as they really become intelligent as to man's place in nature that the theory of self-government can be appreciated or fully understood. It is from such wisdom that the proper machinery of government must be devised, so that the mutual and natural relations between the governed and their repre-

sentatives may be preserved. Civics is as essentially a subject of natural history as are the instincts of the brute creation or the habits of climbing plants. When we learn how to draw its lessons from the story of man's efforts to adapt himself to ever changing conditions, it will be possible to frame a machinery of government that will be flexible enough to meet his growing needs, and still have all the stability of nature's laws.

CHAPTER III.

THE STUDY OF INDIVIDUALS *VERSUS* THAT OF TYPES.

ONE of the most important reasons for the remarkable hold which the stories of history and biography take upon the minds of children, and of older students, too, is the fact that they contain a dramatic element which fires the imagination. The characters portrayed in history are in action; they are doing something which always involves their relations to others, and the part they play is easily recognized as being essential in the general movement. The events themselves become the embodiment of action. One thing follows another in an order that stirs the emotions, appeals to the reason, and irresistibly fastens the entire attention. The treatment also of the subject-matter has been essentially different. In the teaching of history, there is a careful arrangement of details in a proper perspective. The great actors stand well in the foreground as chief centers of interest. The influence of a people, often covering the entire life of a nation, is summed up as a single event in the great historic succession.

The plan followed by most teachers of nature-study has been the reverse. Believing it to be largely an affair of the senses, the pupil at the outset is completely immersed in details so numerous and minute that it is beyond the power of his reason and imagination to reduce them to order. It is as though the teacher of history should begin the study of a great military campaign by a critical study of all the different kinds of buttons on the uniforms of the soldiers. The imagination is a fact and a factor in human education which must be taken into account, regardless of the kind of subject-matter presented. If the presentation for any reason fails to reach and rouse the imagination, no educative result can come from it, though the appeal may have been made to every sense in the body. Many teachers, realizing the lack of this element in nature-study, have sought to supply it by treating all individuals under the guise of human beings. There is nothing in nature, from a raindrop to an oyster, that has not been personified in the hope that this personal relationship to the pupils may be brought out a

little stronger. The general effect of this plan reminds one of the grotesqueness of the hand-organ monkey that is dressed up in a red coat and a cocked hat. His ill-fitting garments certainly add nothing to his character as a monkey, and they fail to give him anything of the bearing and dignity of a man.

An attempt has been made in the foregoing pages to show how the pupil may become properly conscious of the sweep and movement of nature. The events of the year keeping step with the seasons, if properly presented, form the natural setting and background for all the minor details. The latter must be studied as to the part they play in the well-ordered whole. This leads to a study of personal traits and characteristics that are peculiar to each individual; and the study becomes a thousandfold more interesting than it is when everything is reduced to the common denominator—man. In the past too much emphasis has been placed upon classification. There has been too little attention given to individuals and too much stress laid upon types. The type is a figment of the imagination. The typical animal or plant cannot do anything, because it does not exist. Such study, therefore, is uninteresting and profitless.

The most interesting thing about an animal or plant is its own peculiar methods of solving the personal problems that come up in its life. It is able to make its way in the world not more by reason of its likeness to other individuals than by its unlikeness to them. The most fortunate thing in life is to be born different from everything else; with just enough difference to have a unique point of view; to have novel ways of reaching results; to be able to see the opposite sides of questions presented; to be able to utilize what others waste; to have the ability to save when others lavish—these are the personal traits which contribute to the strength and virility of the individual, and it is through such that the race survives. Everything born into the world becomes the immediate possible progenitor of a line of individuals not more remarkable for their likenesses than for their power to vary from each other. It is by means of these fortunate unlikenesses that living forms have been enabled to take possession of every nook and corner of the whole earth.

While it is barbaric and unnatural therefore, to clothe everything in the garb of a man in order to study it, it is most desirable

to treat it as a unique personality that has a particular mission to fill in the world's economy, and as having the power to devise special ways and means for accomplishing its work. Studied in this way, it becomes an actor with a definite part, not merely a cumberer of the earth.

It is safe to say that one rarely observes with care the habits of any particular creature without discovering that it has some peculiarity not noted in the books. The hunter and trapper, the breeder, the fancier, the keeper of pets, the man of science, each has his story that shows up the child of nature from his own particular line of approach. The following instances, taken from personal observation, will serve to illustrate the point:

I once was on more or less intimate terms with an old fox that had a large family of young housed in a deserted coal mine that entered the side of the hill about half a mile away. Naturally enough, the mother depended largely upon the farm-yard products for the maintenance of her family, and one time I had a chance to study her methods. She was observed, some distance away from the barn, stalking a flock of chickens. She simply walked after them, apparently knowing that if she became too enthusiastic in the pursuit, they might, and probably would, take wing. Finding that she was being watched, she bounded away to the den. Noticing a bunch of feathers lying in the course over which she had stalked the chickens, I proceeded to investigate, not doubting that I should find the mangled remains of a fowl. To my astonishment, instead, I found a rooster, with his heels in the air, lying on his back in a shallow hole, left by a horse's foot in the soft turf, and entirely unhurt. When I set him upon his feet, he ran away, no doubt much surprised to find himself alive. The fox evidently had put the chicken on his back into this hole, at the same time hypnotizing him into the belief that he could not extricate himself. Presumably he, by following this plan up, would have secured a full load of poultry before returning to the den to face the clamoring youngsters. I subsequently tried the same experiment upon a rooster, and found that by placing him on his back, as the fox had done, I, too, could make him lie still—but I learned the trick from the fox. I have never read of a similar observation, and cannot say whether it was a habit peculiar to this particular fox or not.

One time, in a large city, I kept an opossum as a pet for nearly a year. It is a misnomer to speak of him as such, for he never seemed to appreciate in any way the attentions he received. One day in the summer he escaped, and for a time all trace of him was lost. The following spring, hearing that a man several blocks away had killed an opossum which he had caught in his chicken-house, I visited the place and found that it was my unfortunate pet. The man said that he had been missing chickens all winter, but had been unable to find the marauder until he had actually lain in wait for him. The interesting point was to know where the creature had lived all these months following his escape. About half a mile away was a shelving rocky cliff formed by the construction of a railway tunnel through a hill. It seemed most plausible that he had sought shelter and refuge in this place, but one could not be sure. The important fact was that this stupid (?) little beastie, reared in the wilds of the Blue Ridge Mountains, with certainly no opportunities of knowing city ways, had managed to support himself and remain undiscovered for nearly a year, in the midst of thousands of his most deadly enemies. Could a human being under corresponding circumstances have done any better? Would a Japanese spy get along so well if he tried to live in Russia? Yet the opossum took just such chances in staying in the city, and he must have found it necessary to invent some ways of doing things that were new and strange to the "typical 'possum."

It is well known that the members of the pigeon family lay but two eggs. I once found a dove's nest in an apple tree that contained but one young one. While it was still quite small the mother dove laid a second egg. This one the young dove kept warm until it was finally hatched; by this time the first one was able to leave the nest. Whether this curious arrangement was made by accident or design it is difficult to say. The only advantage seemed to be in the fact that the nest did not have to be quite so large, nor the food supply at any one time quite so great. I have never seen it noted as being a characteristic habit of doves.

I recall an instance where a weasel produced a reign of terror in a certain chicken-house, and a reign of indignation in the household, for almost an entire summer before his whereabouts were discovered. The marauder was known to be a weasel from the peculiar way that the chickens were killed. In each case the throat

was cut, and often there would be a number of victims in one night. One day while in the door-yard I saw something like a flash dart down a gatepost and enter a knot-hole on the side. Investigation revealed the devastator of the chicken-coop. This creature had managed to maintain itself on the fowls and to live within one hundred feet of the door of the dwelling, in a gatepost which was passed scores of times every day by the different members of the family. It appeared that he had the habit of entering the hole by coming down the post, and that he traveled to and from the chicken house on a fence so that he was safe from discovery by the dogs.

An even more remarkable case was that of a polecat that made her nest and reared her young almost to maturity in a pile of old fence rails that lay within a few feet of a path between the house and barn. There were two or three dogs about whose sole business was to look after "varmints," but this family was able to thrive undiscovered, and their presence was revealed only by an accident. Of course, this animal is nocturnal in its habits, but how, even so, it was able to leave and return to the wood-pile for almost an entire summer without once rousing the suspicions of the inquisitive dogs must always remain a mystery.

These animals adapted themselves to new and novel situations. It seems almost impossible to believe that they obey merely the instincts of the type, the traditions of the race. Apparently they had to invent ways of getting along that were made necessary by the strange and dangerous surroundings.

The knowledge acquired by working out the customs of individuals is more interesting and stimulating in the direction of further study than anything that can be gotten from books or from a more general study of types. The same principle must be applied to the study of nature that we observe in the study of human beings. No one is interested, except in a general way, for example, in the study of tailors as a class. But the study of how the individual tailor makes his way, by contriving special forms of advertising, by changing the cut of his clothes, and by other devices that are peculiar to himself, and which tend to distinguish him—these are full of interest. The same applies to all living things. The fact that they are on the earth today shows how skilful they have been in devising ways and means of self-support. Those less skilful are embalmed in the rocks as fossils or have utterly disap-

peared. The survivors, therefore, should be objects of the greatest individual interest. In their field their skill outwits our own. Were we to attempt to live by the chances taken by a kingfisher, we should have to go to school to the kingfishers for a million years. It is only through the study of the personal life of the individuals that we can have that true nature-study upon which we must depend to broaden the sympathies of the children for the world of nature at large.

CHAPTER IV.

NATURE-STUDY AND EXPRESSION.

In nature-study it is indispensable that adequate and intelligible records, corresponding to the different modes of observation, shall be carefully made and preserved. Few people seem to appreciate sufficiently the importance of appropriate and adequate expression. Teachers are apt to be content with having the pupils see, and then "tell what they see" in oral language, forgetting that the most and the best that they have to tell cannot be expressed in that way. The fear that the technical side of the various modes of expression cannot be mastered in the earlier grades adds materially to the difficulty. The fact is, however, that the mere technical or formal side of a subject is always the easiest part of the subject to learn.

Whatever may be the mode employed it is of the greatest importance that the expression shall be preserved carefully in the form of a record of the work done. Such a record is a powerful and a perfectly legitimate stimulus to further study and effort, and at the same time stands as a coherent history of what has been accomplished. In this way, also, a just basis is established for the judgment of teacher, parent, and pupil as to the merits of the work.

I. COLOR.

Among the records that can be made by pupils of all grades there is no one capable of a wider and more varied application than that of color. Of the mediums that may be employed, for simplicity and effectiveness water-colors are superior to others. With children and with all beginners this record has the highest value: first, because with children, particularly, nature exists as a thing of color, and it is through color that it makes its earliest appeal; second, because the simplicity of the materials used — water-colors — enables the children to express more fully and more graphically, by this means than by any other, what they see.

Fig. I shows one month's record in a pictorial history of the year in color. In the Chicago Normal and Practice School this plan was followed with various modifications for several years. Above



FIG. 1.—Pictorial History for November. (Water Color.)



FIG. 2. History of the Dandelion. (Water Color.)

the fifth grade, the pupils daily painted the landscape, having chosen the time and place most convenient or that would best tell the story of the day. By vote of the children, that landscape was chosen which seemed to be the most faithful portrayal, and it was mounted upon a card. Fig. 1 shows the record of the month of November. Space forbids the reproduction of more of these, and the effectiveness is also much impaired by the necessary loss of color in the half-tone. As such cards are prepared, day by day and month by month, they form a record of the transient aspects of the landscape that is far more graphic and impressive than any other form of expression that can be used by the pupils. The series of cards for the year show with surprising clearness and with panoramic force the seasonal aspects that appear in color. No other form of record brings out so well those subtle changes, occurring from day to day and through the seasons, which appeal so strongly to the aesthetic sense. All are invariably filled with surprise to find the incessant change in the shades of green that sweep over the landscape during the summer. No two months are the same. The earliest tingeing of autumn shades strikes the treetops, and through a series of browns and yellows finally descends to the winter drab of the ground. In the spring the earliest signs of reviving life appear on the surface, and they gradually work their way, through a new series of shades, to the treetops again. In the winter almost the entire color effect is derived from the dead—the dried grass and weeds, the bark on the trees—and from the inorganic domain of nature—the ground, rocks, streams, bodies of water, snow, and ice. That this scene does not become a pulseless monotony through the long winter is very largely due to the infinite change in appearance that is wrought by its constantly shifting background—the sky. The rose and the pink, the purple, the lilac, the gray and blue of the winter heavens in the evening and morning, seem to be the finest of the year.

In the summer time color speaks of life and of work. Every hue and shade tells of something done—of a twig that has grown, of a flower, or of a fruit. No record of tongue or pen that the children can prepare will compare in its completeness and vividness with this history which they can write with the brush.

In descending to the details of the landscape the same mode of expression may be used with equal effect. In Fig. 2 there is given

the history of a dandelion from its earliest sprout to the seed. This history finds an interesting parallel in the docks, thistle, cinquefoil, and many other plants that are in almost every vacant spot of ground.

In Fig. 3 the story of germination is told in a series of paintings illustrating the growth of the ragweed which infested a vacant lot adjacent to the schoolhouse. These plants were observed through the spring; and in the autumn, when school reopened, the children again went to the lot and finished the history by studying and representing the full-grown plant with ripened seed.

It has taken teachers a long time to find out how much more interesting it is to study germination when all creation is sprouting than it is when observations must be confined solely to window-boxes. The latter may supplement, but they should not take the place of, outdoor study. By the latter means only, when the plants are starting under natural conditions, is it possible for the pupils to find out the fundamental facts in germination. A seed represents a plant in a state of isolation. Germination and growth mean the establishment of definite relations with heat, moisture, and light. When the proper degree of heat is reached, the plantlet establishes relations with moisture, which it finds in the soil, by means of a root. A little later it forms its relationship with light by means of stem and leaf. The relative importance of these two relationships is indicated by the measurements of root and stem. Later, as the plant develops, the part that the leaf plays in the plant's adaptation to varying quantities of heat and moisture also appears.

The study of germination in this manner includes observations on the temperature of the soil at different depths, the moisture in the soil, the temperature of the air, and the distribution of sunshine and rainfall.

Another interesting detail of the landscape which may be studied in the same way is the development of branches, flowers, and leaves from buds. Fig. 4 shows such a record made by fifth-grade pupils from a study of various trees in the neighborhood. This history shows that in taking up the work of a new season the plants form a regular procession, in time, in which each has a tolerably well-defined place.

The bud, like the seed, has several interesting problems to solve.

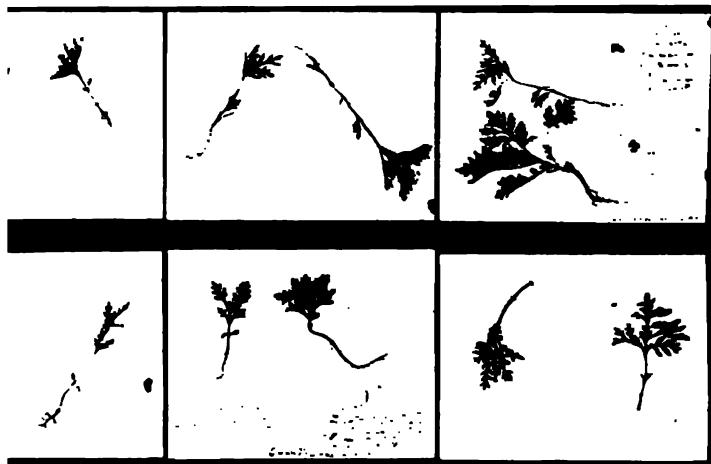
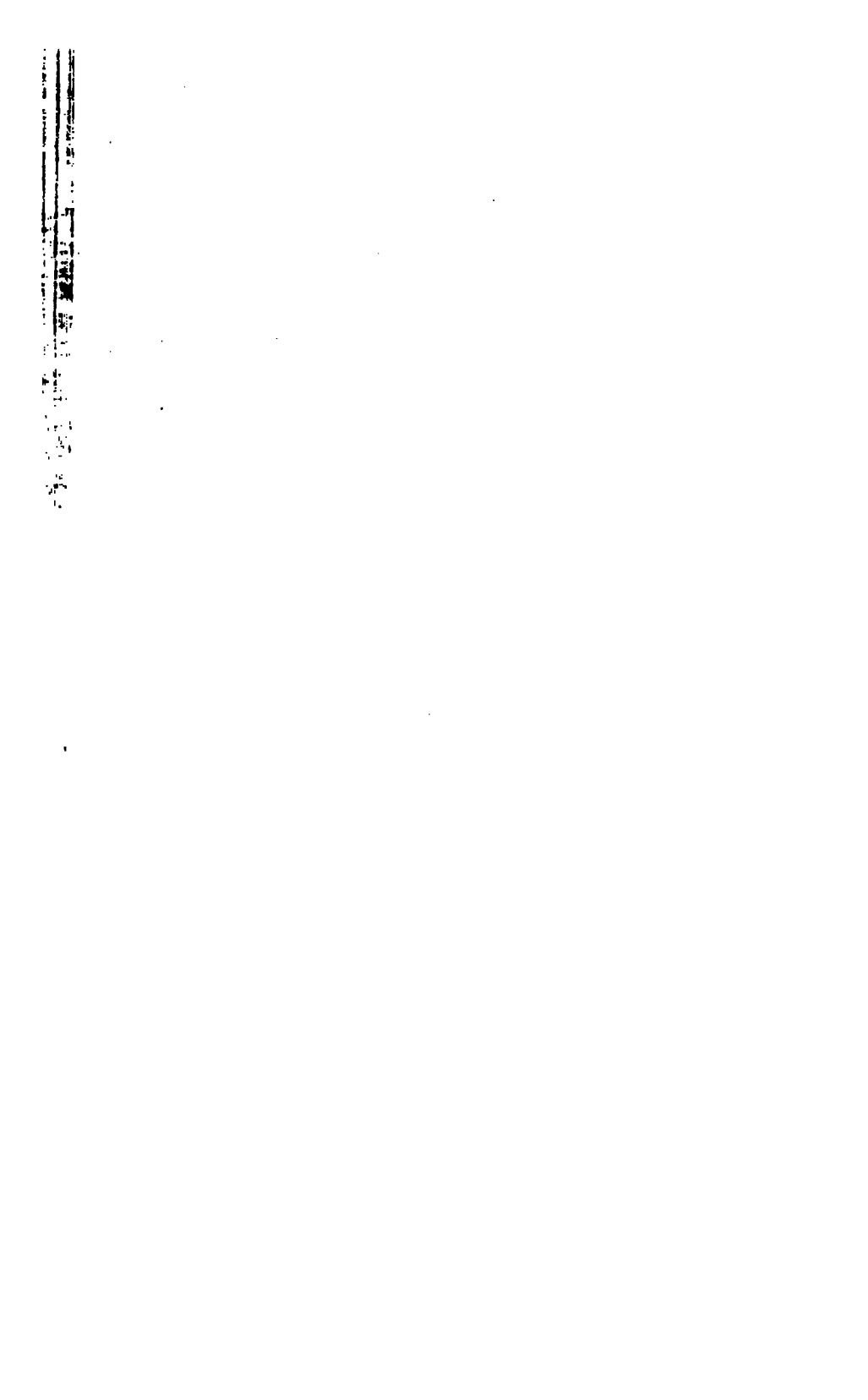


FIG. 3.—History of the Ragweed. (Water Color.)



FIG. 4.—Development of Leaves. (Water Color.)



It involves no small risk to unfold the tender leaflets and shoots to the uncertainties of early spring. The extent of the risk may be broadly imagined by the numbers of dormant buds that are held as reserves. In sundry ways each plant tries to checkmate the possible treachery of the elements. In some cases, as in the ash, the bud scales grow and attain considerable size, thus affording the early protection possibly needed. In others the stipules perform a similar office; and all seek to gain more or less time, before fully exposing the young leaf surface to the glare of heat and light, by a diversity of folding, wrinkling, and curling of leaves. The brilliant coloring of some young leaves, as in the oak and sassafras, probably expresses a heat-relation by means of which the young cells are able to extract a little more warmth from the sunshine, and thus give the plant the advantage of a little earlier start. This seems like a doubtful explanation in the case of the sassafras, at least, whose young leaves put forth in July are as highly colored as those which start in April and May.

In addition to their work upon the landscape and its details, many of which limited space forbids even mention, the pupils for several years had under observation an area known as the school garden. A view of this is given in Fig. 5. The garden was about 40 by 50 meters, and contained approximately half an acre. It was divided in various ways to suit changing conditions, but always in such manner as to give each grade, from the kindergarten up, a fair proportion of the ground to care for. It is a great point for the teacher to recognize the fact that children's interests are by no means all identical in nature-study. None are lacking in all interest, but very few interests run exactly in the same channel. The value of the work is much enhanced by throwing open the whole field to the pupils. Some of them, therefore, have been allowed to follow up certain phases of the garden-work, while others have devoted themselves more closely to the wild plants or to the birds or insects. As the different pupils report upon their work, however, there always appears a considerable community of interest, corresponding to the interrelations that develop among the things studied.

In autumn the color record becomes, if possible, more varied and richer. The landscape changes are more vivid and striking. Insect life is at its best. Caterpillars in almost endless variety

afford continued entertainment, and through their curious habits initiate the children into some of the most interesting of life's mysteries. Fig. 6 shows some of these studies. One is that of a caterpillar that found its way into the schoolroom, and in seeking the upper corner of the window frame in order to spin its cocoon, for reasons possibly known to itself, certainly not to the observers, it spun for itself a kind of Jacob's ladder *on the window pane*, by means of which it climbed to its destination.

Another is that of the sand spider which the children dug out of a sand dune at a depth of two feet. This little creature had walled up its chimney-like burrow with a finely woven web which prevented the loose sand from caving in upon it when, relatively, as far below the surface as a man would be in one of our deepest mines.

A third study shows the larva, a caterpillar, which has itself become the unwilling and luckless host that supports two or three score of smaller larvæ, which now have spun their tiny white cocoons on the outside of its miserable and shriveling body. A fourth shows how some of the insects have successfully run the gauntlet so far as to be snugly ensconced in their winter garments — the cocoon. But whether they shall escape the lynx-eyed, hungry blue jay, and emerge in the springtime in the glorified garments of their final transfiguration, no one can tell.

II. DRAWING.

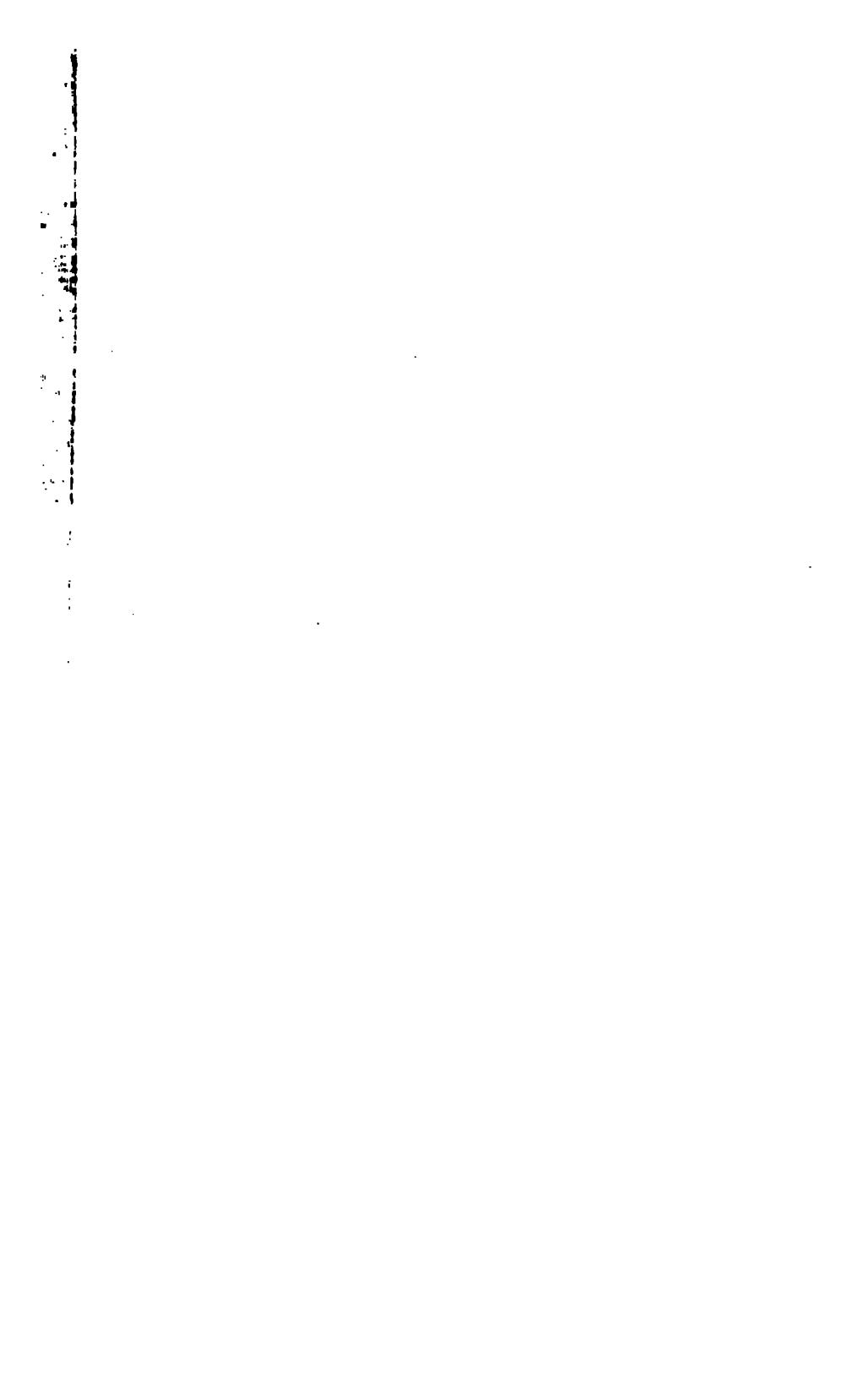
There is a good deal of confusion in the minds of most teachers as to the relations of painting or color-work to drawing. It is evident that both modes of expression, as such, have certain elements in common. For example, form in two dimensions must be expressed by both. It is equally clear, though, that there must be some points of fundamental difference, and the failure to recognize these leads to undiscriminating and vague use of both. The function of any mode of expression depends upon the nature of the image. In this case it would seem, therefore, that when the function of the thing observed is expressed through color, wholly or chiefly and the image thus is largely visual painting is the proper mode to be adopted. But in cases when the color is secondary in denoting function, and when outline is primary, and the image is therefore chiefly *motor*, then drawing is the most direct mode to



FIG. 5.—The School Garden.



FIG. 5a. The Same Garden in the Month of June.



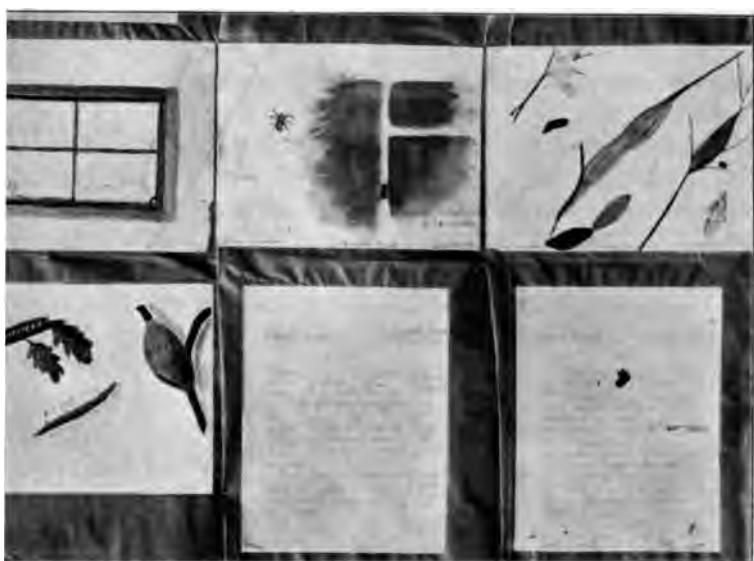
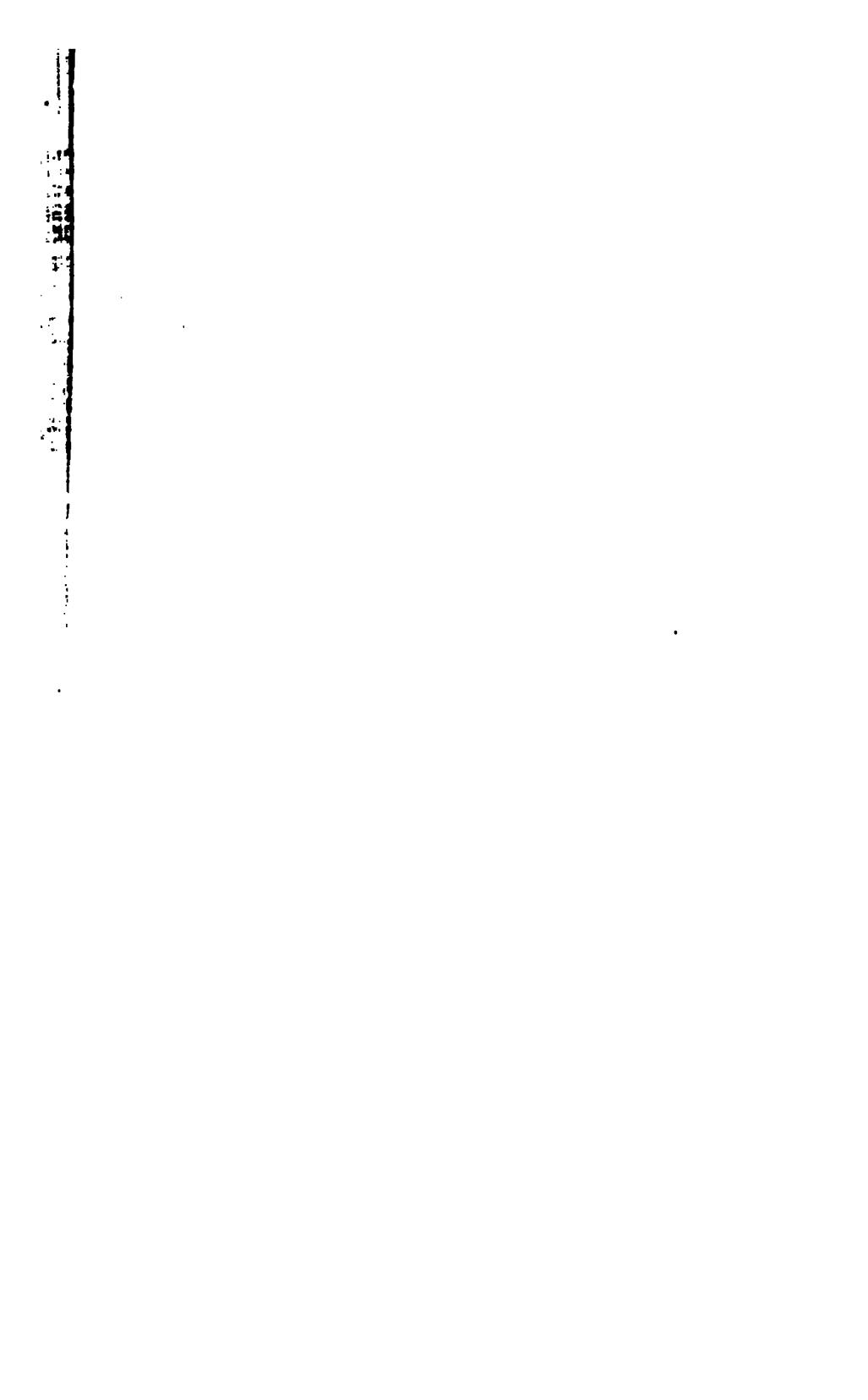


FIG. 6.--Paintings with Written Work.



be used. As an illustration of this point, it may be said that when a child sketches a tree in winter with its bare branches, color plays a secondary and unimportant part; but the outline of the tree, by the direction of its branches and the contour of its top gives rise to an image involving direction and distance, and the image is therefore chiefly motor, and drawing is the direct and appropriate mode of expression. But in the summer, when the life of the tree is shown in the color of the leaves, the contour of the top and other outlines are secondary; the image is chiefly *visual* and painting becomes the appropriate mode.

III. MODELING.

The relation of both these modes of expression to modeling is obvious. When the function of the thing is expressed wholly or chiefly only when the third dimension is taken into account, then the image becomes motor, and it is clear that modeling is the directly appropriate mode of expression. For example, in the case of a fruit, the chief function is not dependent upon either color or outline, but upon the form in three dimensions. The image is, therefore, motor; and since the three dimensions are involved, modeling is the mode that should be used. If, now, color, too, plays an important function, as it does in the case of some fruits, then the model should be colored also, because an important aspect of the image is visual.

IV. MAKING.

The great value of making, which is here intended to include all forms of manual training and constructive work, lies in the fact that the thing made need not be constructed in accordance with any model or pattern. In painting a landscape, the result, to be rational, must embody the essential features of this or that area, or it may be a composite of many areas. But in building a conveyance, for example, the maker is at liberty to invent a form never yet beheld by anyone—the only prime requisite being that it shall perform its function better than any other conveyance already built. In this respect, mechanical drawing is closely allied to making.

Nature-study opens up an exhaustless field for manual work, not only in the construction of apparatus, but in the performance of experiments in physics, chemistry, and other sciences, all of which require the constant exercise of the inventive function of the mind and the greatest manual skill that the pupil can command.

V. READING AND WRITING.

It is needless to dwell upon the fact that the chief reasons why reading and writing become irksome tasks are that the form side has been emphasized at the expense of interesting content. The ordinary school-work does not furnish a great demand for the use of these particular tools. In order to illustrate the part that these subjects may play in nature-study from the earliest steps in observation, the following lesson is given with a summary showing the way in which it was prepared and something of its educational value:

READING LESSON ON THE FARM.

November 2 we went to visit a farm.

It was a beautiful day.

Deep-blue sky above us.

Not a cloud in it.

Cool fresh air around us.

Bright warm sunshine all day long.

"The nicest day of all the year!" said Fritz.

The farm we visited is fifteen miles from our school.

It is on Halsted Street.

We might have gone all the way out in wagons.

That was too slow for us.

It took us forty-two minutes to go to Thornton, on the train.

Then we were only one mile and a half from the farm.

Big hay-wagons were waiting for us at the station.

Oh, what fun we had going to the farm!

We passed a big limestone quarry.

We wanted to see it.

But we could not stop for that.

We passed some beautiful oak woods.

We wanted to gather leaves.

But we could not stop for that.

We passed a great yard full of horses and colts.

We wanted to watch them.

But we could not stop for that.

We passed cows and calves, goats and little pigs.

We saw old hens and chickens, and a big, proud peacock.

But we could not stop for any of these things.

They needed our horses at the farm, you see.

After a while we came to more beautiful woods.

We heard turkeys gobbling.
We saw a red-brick house.
We were at the farm.

The people at the farm were very kind to us.
They came out to meet us.
They let us go everywhere.
They let us see everything.

We went first to the horse-barn.
We saw each horse go into his stall.
They were fine, large horses.
They were black, white, and brown.
Some of us liked the white one best.
Some liked the big black one best.
In each stall was a manger full of hay.
We saw the horses fed and watered.
We saw them hitched up for work.
The man showed us how he kept the horses clean.
He combed their hair with a curry-comb.
One boy said: "I am glad my hair is not combed that way!"
The man showed us the hayloft full of hay.
He showed us the oat-bin full of oats.

Then we went to the cow-barn.
The cows were out in the cow-yard.
That was back of the barn.
There were twenty-five cows in the yard.
In the barn was a little black and white calf.
It was only two days old.
Its mother was in the yard.
She kept calling it.
It always answered her.
"Moo! Moo!" said the old cow.
"Maa! Maa!" said the little calf.
We wanted to stay and watch him.
But there were many things to see yet.
We had to go on.
We saw all the food for the cows.
There was ground corn, and oats.
There was plenty of hay and corn fodder.
Corn fodder is the dry stalks and blades of corn.
We saw the stalls where the cows were milked.
They were not like the horses' stalls.

There were no mangers in them.
There were slats to hold the cows' heads straight.
Why do people wish to hold the cows' heads straight?
We saw much straw for the cows' beds.
In summer the cows sleep outdoors.

Then we went to see the pigs.
They grunted and squealed when they saw us.
"Give us something to eat," they said.
We ground corn for them in the corn-grinder.
We fed them some of our lunches.
Still they grunted and squealed.
Pigs never seem to know when they have enough to eat.
They would eat all the time, I think.
Then we went to see the machines.
There was a shed full of them.
There was a ground-roller.
We rode on that awhile.
There was a drill to make holes for the seeds.
There was a hay-rake and corn-cutter.
There were a great many other machines, but we did not see them used.

Then it was noon.
We sat down outdoors to eat our lunches.
Some of us sat on pumpkins on the porch.
Some of us sat under the trees.
It was nice to look up at the blue sky.
We had to look out through the red and yellow leaves.
There was a large woods across from the house.
Oh, there were such pretty leaves on those trees!
The oak leaves were purple, brown, and red.
The maple leaves were bright yellow.
The pines were deep green.

After lunch we ran over into the woods.
We played games and climbed trees.
We filled baskets with acorns for Bunny, our squirrel.
We gathered pretty leaves to take home to mother.
We saw a man cut down a pine tree.
First he cut a notch all around with his ax.
Then he cut in deeper and deeper on one side.
Down came the fine tree.
We wondered why he cut it down.
One boy said: "It's for a Christmas tree."

Do you think it was?

Another said: "Oh, they want to get the pineapples."

He thought the cones were pineapples.

That was a joke. Do you know why?

We went to see the man plow a field.

It took three horses to draw the plow.

The plow-knife was round like a wheel.

It cut through the sod.

The plowshare was behind the wheel.

It was made of bright steel.

It turned the soil over.

It was a long, long field, but we went to the end of it.

The soil by the house was sandy, but this soil was black.

We brought some of it home.

It is not like our garden soil.

At four o'clock we all got into the hay-wagon again.

"Good-bye, pretty woods," said one girl.

"Good-bye, nice farm," said another.

"Good-bye, and thank you," we all said to the kind people.

Then we came home.

Was it not a nice day?

In summing up this lesson as to its educational place and function, the following points may be noted:

1. The day's observations of a widely varied character, enlisted the equally varied interests of the pupils.

2. When the pupils returned for days, perhaps weeks, they were permitted — invited — to tell the stories of their experiences.

3. They were confronted by the fact that the oral story could not be held strongly in mind, and they at once appreciated the real function of writing as a means of keeping a record.

4. The teacher at first wrote these stories, as they came to her, on the blackboard. This was the strongest possible stimulus for the pupils themselves to make the effort to write. It is of the utmost importance that the teacher be a clearly legible and rapid writer, so that the pupils may have as nearly as possible the perfect copy.

As to the method, the teacher wrote the entire sentence or story. After the opportunity of a minute or two had been allowed the pupils for examination, it was erased and they were permitted to try to reproduce it from memory. If they failed, as they always did at

first, the sentence was rewritten, and repeated trials were permitted until the pupils could reproduce the story. This was to induce the pupils to grasp and hold the entire thought and the complete forms that embodied it, and to prevent that painful copying, letter by letter, which is the bane of the old copy-book method.

5. As the stories were written on the board, they were read by the pupils. These were interesting to all, because each generally contained some bit of a picture that had partly or wholly escaped the attention of others, and then writing and reading were both given immediately their proper function.

6. It was soon evident to the pupils that the order in which the stories were told by the class was not the best to express the experiences of the day as a whole. They then selected those stories which bore upon the same point and grouped them together, forming something of a chapter. Within this chapter, too, they arranged the stories in the most effective sequence.

7. When this work was done, the stories were copied upon paper and sent to the printing-office. In a day or two it came back in large type. It was a matter of some conjecture as to whether the pupils would care to read the story, now, after having dealt with the details so fully before printing. But the doubt was immediately dispelled. There was the most eager desire to read—partly, no doubt, from the novelty, and from the fact that each had contributed to the composition, and therefore had a desire to see himself in print; but, in the main, because through the reading they actually lived the day over again. In this way the reading performed its perfect function as an aid in imaging.

Of course, the pupils did not recognize all the words—perhaps not more than half of them. Their eagerness to get the meaning, though, rendered them alert in getting the new ones; and the meaning was clear to all. Teachers are frequently so overconscientious in making sure that the pupils get every word that they spoil the spirit of the reading. Nobody is ever expert enough to be perfectly sure that he will know either the pronunciation or meaning of every word on the page of the ordinary newspaper, magazine, or book. Yet we get the sense from the context without this final detail of meaning, and we get from the page all it was intended to give. The same rule should apply to the children. The nature

picture is the thing to be developed, and the reading must be, and it is, a useful means, not a hindrance, to that end.

8. When the work of the school, in reading as well as in other subjects, can be printed, as it was in the present instance, the pupils can be given an opportunity for bookbinding. In the present case, an old book was soaked and the cover removed, and the different parts were separated so that the pattern could be obtained. Then, with cardboard, and paper suitable for the covering, and leatheret, the pupils constructed a back that held a number of short stubs of leaves. To these, they pasted the printed sheets, as they were prepared, and thus built up their own reader and text-book.

Reading taught in accordance with the principles suggested above becomes of immense service to nature-study, and it is also much more. It makes a direct appeal to the literary taste. Not only does it create a taste for what others have written, but it lays the basis for literary composition by the pupil himself. The two following reading lessons on "Sunrise" and "Sunset" are a child's original expression concerning two sets of natural phenomena that have given to literature some of its choicest gems:

SUNRISE.

I saw the sunrise.
It was beautiful.
Some clouds were red.
Some clouds were white and pink.
Some clouds were golden.
The sky was blue.
Then the sun came.
I could not look at it.
It was too bright.
The birds were singing.
The dew was on the grass.
The sun rose in the east.
That way is east.

SUNSET.

That way is west.
The sun sets in the west.
I saw the sun setting.
It was beautiful.
It was large and red.

I could look at it.
Some clouds were golden and pink.
Some clouds were white and fleecy.
The white clouds looked like ships.
The sky looked like a great still lake.
Will you look at the sunset tonight?

Teachers of nature-study too often imagine that their work ends when the senses have been employed in observation. Pupils are taught to observe for themselves, but they are generally given the impression that for the literary and artistic aspects they must depend upon others. Hence, while they see for themselves, they read the poetry and sing the songs of other people. This is as bad as it would be to have them depend wholly upon the observations of others. The literary and artistic impulses are roused in the children by nature, as they have been aroused in older people before them, and it is the teacher's business to nurture and develop the appropriate forms of expression in the children themselves. This cannot be done by having them always read what has been said any more than they can be taught to observe by telling them what someone else has seen. A field trip has not been wholly successful if it does not rouse the artistic feelings—if it does not stimulate them to paint, or lift them up to the use of the best language; or if it does not furnish the spirit for a song. The chief reason why these results are not secured is that teachers pay no attention to the foundations which nature-study lays for them. These impulses in children are easily roused; but, uncared for, they soon wither and die, never again to reappear. Hence, the dull and prosaic life, instead of one rich in feeling, in sympathy, and in appreciation of both nature and man.

VI. MUSIC.

The following song was composed under the direction of Mrs. May Root Kern by a class in the Laboratory School of the University. Song-writing should be almost as common an expression in connection with nature-study as drawing or written composition.

The day was pleas-ant, The air was fresh and cool As we
The air was per-fumed By pur-ple li-lacs gay, As we

start-ed on the train for our ex-cur - sion, We
went a-long the road on our ex-cur - sion, We

passed green hills and mead-ows Where hap-py chil-dren played; We
saw the bud-ding lil - ies Up - on the wa-ter blue, We

A musical score consisting of two staves. The top staff is for the voice, featuring a treble clef, a key signature of one sharp, and common time. The lyrics are written below the notes. The bottom staff is for the piano, showing a bass clef and common time. The music consists of two identical measures. The lyrics are:

saw a lit - tie streamlet Flowing gen - tly thro' a glade, And we
gathered dew - y vi - o - lets, And ap - ple-blos-soms, too, And we

all felt glad and gay on that ex - cur - sion!
all felt glad and gay on that ex - cur - sion!

CHAPTER V.

NUMBER-WORK IN NATURE-STUDY.

IT is the function of observation to define a mental picture or image. By means of number the image is defined through a determination of quantity. In the application of number therefore, the same principles must be observed that are employed in defining the image by other means.

1. There must be a clear idea concerning the image to be defined.—If, for example, a pupil is required to find the number of barrels of water in the rainfall of a given area, he should know beforehand how this result is to contribute to the nature-image that is being developed. The life-conditions of a given area are largely affected by the rainfall. By finding the quantity the student determines exactly the value of that particular factor, which enables him to make definite comparisons with other areas, or with the same area in different months or years.

2. There must be an appropriate selection of units of measurement.—The units chosen must be such as will involve the pupils least in the details of process, and which, at the same time, will best approximately define the image.

Pupils in the early grades should deal with quantities of large amount. For example, the amount of water in the soil found by drying out one cubic inch might serve the purpose with an adult, but it would make practically no impression on young children; whereas the picture might be made very interesting if in the latter case a bucketful of soil were used. The bucketful would be, perhaps, as much as the pupil could lift, and might weigh ten pounds. It would be much easier to get numerical results that would be intelligible if pounds were used, than it would be if ounces were employed. So, too, yards in many cases would mean more than feet or inches.

3. The most expeditious methods of measurement should be adopted.—Estimate, then measure. Neglect the fractions that do not stand for an actual image in the pupil's mind. This will fix naturally the limits of the decimal. If a hundredth of a pint

possesses no significance to the pupil in his image of the quantity involved, then neglect it. Fractions should be taught along with whole numbers when they assist in determining an actual image—not otherwise, any more than a useless or meaningless word. Common and decimal fractions should be taught from the beginning. The difference is merely one of written language.

4. *There must be careful selection of the processes by which the comparisons are made.*—This will be determined by the pupil's ability to picture and use the different standards of comparison. The earliest processes will be addition and subtraction; then fractions; later ratio and percentage.

5. *The results obtained must be represented objectively until they will be habitually imaged.*—Thus, if it is found that a cubic foot of soil contains three gallons of water, (a) the actual size of the cubic foot must be shown (by a model or otherwise), and (b) the water must be actually measured and put into some convenient receptacle. In the same way, the units yard, foot, inch, acre, mile, square mile, etc., etc., must be actually seen until they become a part of the mental equipment. They should be ready for immediate use, just as the color green or red is always ready when needed in our thinking. Represent proportions by diagrams and models.

6. *Using the results obtained as data, a great nature-picture must be constructed.*—By calculation, the real magnitude of the world-operations should be brought out with all possible distinctness. For example, a certain series of rainstorms that crossed the United States gave an average depth of five and one-half inches of rainfall. This amounted to nearly three and one-half gallons of water per square foot of surface. (The result should be shown objectively, as suggested in 5.) When the amount of water is calculated for the entire area, the mind is staggered at the quantity. It would fill a hole having a cross-sectional area of twenty acres, about *two thousand miles deep*. Although the quantity of water is so enormous, it fell as rain not only harmlessly, but in such a way as to greatly revive and refresh the earth. There is no other means of opening up these world-pictures to the pupil except through the intelligent use of numbers.

It is useless to merely enumerate topics in nature-study which require number-work. The number-work is not required in fact, unless the topics themselves are fully worked out. A random use

of number with nature-study materials is as bad as the present sterile array of problems in the ordinary text-book in arithmetic. There will never be any such thing as rational mathematical work until it is confined to the appropriate part it plays in the development of an image.

One of the chief obstacles to intelligent number-work is the deep-seated feeling in the minds of most teachers that a large amount of drill-work is necessary in order to fix the process. That much repetition may be necessary does not imply, however, that it shall take the nature of drill on empty and meaningless forms. The same principles apply here that apply to reading. It would be just as senseless to isolate the words of a lesson and require the pupil to learn them all by rote before learning to read, as it is to isolate a lot of facts in the form of the multiplication table or the tables of compound numbers and require the pupils to memorize them. That both words and certain results in arithmetic must be memorized no one will dispute, but there is no reason for doing one thing with words in reading and another thing with number.

The tables of various kinds in arithmetic should be built up just as a vocabulary is formed. When a word is used by the pupil in the development of an image, the teacher usually, as she should do, makes an effort to fix the word in the mind. If the child fully understands its function in the development of his image, it is comparatively easy to do this; otherwise it is not readily done. So in number, if the development of the image requires that the pupil get the product of 6 times 8, when the result, 48, is obtained the operation should be fixed in the same way that the word is memorized. In fact, this part of the work is nothing but a language lesson, and it should be treated as such. If from day to day these operations are all gathered up and tabulated as they occur, the tables will take care of themselves.

The real point of importance that is involved here is a moral one. No one has yet been able to calculate the evil done to the pupil by enforcing the current drill methods in arithmetic. By this practice it habituates the pupils to dealing with forms without meaning — to blindly doing things from which they expect no intelligible result. If we were to practice the same methods in teaching reading, if we were to "drill" the pupils upon words without meaning for year after year, as we now drill them year after year upon

processes which lead to senseless or meaningless results in arithmetic, we should engender the same indifference, not to say hatred, to literature that now exists in regard to mathematics. Why is it that when pupils leave school they always have more or less taste for their literary studies while not one in ten thousand even attempts to "keep up" his mathematics? Why is it that at a certain point in the academic course students have sometimes instituted the custom of publicly burning their calculus? Why is it they have never thought of burning their Shakespeare, or Milton, or Tennyson? There is no reasonable answer to these questions, except that in the one case the study of literature has been made to contribute something to their lives of real value which they are able to appreciate, while in the other case they have got nothing. Everybody clings to that which really helps him grow, and the fact that the great majority of pupils who leave school either detest mathematics or are in a state of helpless despair about the subject is enough to make the philosophers who are inundating us with volumes on the psychology and pedagogy of the subject stop to think. They have surrounded the subject with so much mystery that most teachers are no longer even curious about it, and they have given up trying to penetrate it. There is no more mystery about the psychology of number than there is about the psychology of reading or drawing or any other subject. The fact is that there is no psychology of any subject—it is all the *psychology of thinking*. It is simply a question of finding out what image the pupil has that is worth developing, and then of helping him to the use of tools, *as he needs them*, in its growth. Mathematics plays a distinct part in image-development which any teacher of ordinary sense can recognize. It is nothing but the blindest slavery to tradition that keeps the pupils from a rational use of number. It is due to the general prevalence of the antiquated notion that in these early stages of education it is necessary to isolate in a meaningless way the process side of the subject for the purpose of drill. It has been shown very clearly, both in theory and in practice, that the pupil does not get by this method that mental discipline that is supposed to come with the study of mathematics. It is evident that this must be so because, as before pointed out, the drill is necessarily much more a matter of language than of number; the drill fails even as a linguistic exercise because the language is

meaningless. With the disciplinary idea out of it, the ancient method of teaching number that still so largely prevails has not a single foot left upon which to stand.

The lessons given here are submitted as illustrations only. They are worthless to any except those pupils who actually made and recorded their observations. The work was done with great deliberation and covered many weeks, because great nature-images grow slowly with children. The lessons in this connection, are only intended to illustrate what has been said as to the function of number in defining an image.

I. THE DISPERSAL OF SEEDS.

An attempt is made to form some idea of the rate at which plants might multiply, as indicated by the seed-production.

1. Near the schoolhouse a vacant city block rather thickly covered with wild verbenas was selected for study.

2. By measurement and calculations this area was found to contain approximately one-fourth of an acre.

3. Areas of one square yard each were measured in various places and the average number of plants was calculated.

4. An average of thirty plants per square yard gave approximately 36,000 to the quarter acre.

5. Each seed pod contained four seeds, one of which, on the average, it was found, failed to mature. The number of pods on a spike was counted, which, when multiplied by the number of spikes, gave 2,300 seeds as the average number produced by each plant. Since only three-fourths of the total number matured, each plant furnished, therefore, (approximately) 1,700 good seeds available for growth.

6. If these good seeds were properly distributed, and if each were to produce a plant, the one-fourth of an acre the second season could populate 425 acres—approximately two-thirds of a square mile; *i. e.*, equal to an area bounded by Cottage Grove Avenue and State street on the east and west, and Sixty-third and Fifty-fifth streets on the north and south.

The third season, under the same suppositions, enough seeds would be furnished to populate 1,122 square miles; *i. e.*, more than six times the area of Chicago.

The fourth season, under the same suppositions, the area popu-

lated would be 1,907,400 square miles; *i. e.*, equal to about thirty-four times the area of Illinois.

The fifth year the number of seeds would be sufficient to furnish plants as thickly as those found on the quarter of an acre for an area equal to sixteen times that of the entire earth.

These measurements and calculations give (*a*) an idea of the vitality and the tremendous push and rush of the living things; (*b*) since there is no such increase, as an actual fact, they indicate the degree of failure on the part of the plant to get its seeds properly scattered and safely planted, and also the enormous resistance offered by other plants and climatic agencies to the growth and spread of the verbena.

II. SEASONAL CONDITIONS: WERE THEY FAVORABLE OR UNFAVORABLE?

1. *Rainfall*.—One inch of rainfall furnishes 540 fifty-gallon barrels of water per acre, or 135 barrels for the quarter acre. During the month of May, June, July, August, and September, where the verbenas grew, the rainfall due the plants, according to the thirty-year average given by the Weather Bureau, is 16.1 inches, or 2,229 barrels. The actual rainfall for three months in 1901 was 13.9 inches, or 1,874 barrels. There was, therefore, a shortage of 2.6 inches, or 351 barrels. That is, from this cause alone the vitality of the plants was reduced by about 16 per cent. This may be viewed in different ways: (*a*) that only about eight plants out of ten would grow this season; or (*b*) that eight seeds out of ten would mature; or (*c*) that the general vitality was lowered, which would be felt the following season.

2. *Sunshine*.—The Weather Bureau records for the past eight years show that this region has received 65 per cent. of the sunshine possible during the months under consideration. In the year 1901 this area received 68 per cent. of the possible sunshine. It follows therefore that, since plants are most active in sunshine, there was an overstimulation of 3 per cent. above the normal. Since, also, during sunshine plants are most active in the transpiration of water, and since there was a shortage in the supply of 16 per cent., it follows that the combination of these two causes operated to intensify the strain upon the plant. The plant endeavors

to resist this strain by reducing the leaf surface exposed to the sunshine.

3. *Temperature*.—The average temperature for the five months for thirty-one years is 66 degrees. For the year 1901 the average temperature for the same month is 68 degrees. There was actually, however, an excess of 6 degrees during this time, as shown by the Weather Bureau records. This condition meant, also, not only a possible increase of plant activity; it meant more than the normal evaporation from the soil which would tend to cut off the water supply from the plant.

4. *Variation in intensity of sunshine*.—On the twenty-first day of each month the distribution of a given beam of sunshine at noon is proportional to the following areas: May, 108; June, 105; July, 107; August, 115. These results are obtained approximately by the use of the skiameter. The intensity of the sunshine varies inversely with the areas of distribution. In the month of June, when the intensity of sunshine is greatest, the average cloudiness is 32 per cent.; in 1901 the average cloudiness was 31 per cent. Therefore the withdrawal of the friendly cloud shelter by the amount of 1 per cent. in the month when the intensity was greatest served still further to increase the stress laid upon the plant in the year 1901.

These causes all happened to combine directly in this particular year to menace the future of the verbena. They also operated indirectly, so far as they favor other plants that know how to get along with the reduced amount of moisture and the increased amount of sunshine and heat.

The botany of the verbena, therefore, for this particular year, becomes chiefly a study of the various devices of leaf, stem, and root by which this plant is able to maintain itself against all these unfavorable influences, *which the work in number shows to be actual and definite forces of enormous power*.

As an illustration of the point, already urged, that the form side of the subject should be studied as the image-growth proceeds, it will be found by an examination of the lessons that the following processes have been involved, which should be formulated or tabulated in any convenient fashion (*and learned*) as the study proceeds:

1. Reading and writing of numbers up to and beyond six places.
2. All the fundamental operations.

3. Fractions: common and decimal; fundamental operations.
4. Percentage: all the processes or "cases."
5. Square measure, units: acre, square rod, square yard, square foot, square mile.
6. Linear measure: inch, foot, yard, rod, mile.
7. Volume: pint, quart, gallon, barrel.

A word further must be said as to the method of teaching these forms and processes in connection with the actual image-development. Most teachers are so overconscientious about the matter, to put it charitably, that when a pupil fails to learn the processes *at once*, he forthwith drops everything else and proceeds to belabor him so that "*he will never have to learn that particular fact again.*" The teacher who does this is not thinking of what he is doing. He is merely trying with his eyes shut to make a reputation for being "thorough." Such a teacher pays no attention whatever to the way in which we naturally learn all those things in childhood that we never, never forget. A child never learns anything thoroughly the "first time;" neither does an adult. But he comes back to it again and again as he needs it; its function becomes all the while clearer and clearer, and finally we have the astonishing result that neither the worries of active life, nor the ravages of disease nor length of years, can efface the picture from memory. It is probably not without the deepest significance that teachers would do well to heed that, when in old age all the experiences of an entire middle life fade, there remain those vivid memories of childhood that were garnered up in nature's own deliberate way. In the delight of those visions of a long-ago youth, it is doubtful if the multiplication table or the division of fractions ever plays an important part. The pupil should not be belabored into mathematical processes any more than he should be belabored into words in his reading. In the latter subject the principles of the kindergarten are beginning to be appreciated; in the former, the methods of the penitentiary still prevail.

CHAPTER VI.

NATURE-STUDY AND MORALS.

THE questions which relate to material and method in nature-study are beginning to be treated with great intelligence and skill. It is a serious mistake to suppose, however, that when all such problems are solved we shall find the subject on its final and highest educational footing. The teacher until now has been concerned chiefly with matters of expediency and of lesser importance. He has but barely reached the point where a discussion of the fundamental question is possible. I refer to its place in the training for moral character. In spite of the tremendous impetus from the practical side which nature-study has received within the past decade, its position in the schools is still tentative, and its final mission in education is still problematical. It might be said, better, that its position is tentative *because* its mission is problematical. In these days there is a decided tendency to measure the value of any subject by the direct contribution which it is able to make to the development of character. In answer to this question, "What can nature-study do to make the pupil more upright, and more moral generally?" the teachers have not been specific; they have been hesitating, equivocal, indirect, and quite unsatisfactory. As compared with the teachers of the so-called humanities, in their answer to this great question which is the final one in education, the teachers of nature-study have not appeared to the best advantage. The former are always ready to point out that, since the materials for their subjects are drawn directly from the interrelations of men, the results of such teaching will therefore bear directly upon those mutual relations. The claim is commonly made that it is only through this direct study of human relations that moral standards become known, established, and enforced. There is scarcely any dealing between man and man that cannot be seized upon by the shrewd teacher of the humanities as proper material from which to derive a legitimate lesson that will tend to elevate and more clearly define the moral status of the human being. But when the teacher of nature-study is called upon to show an

equivalent value in the studies that he requires his pupils to make of the tree, of the grasshopper, of the snake, of the crayfish, or of all of them together, he is not so ready with an answer. I have frequently made some interesting tests with my pupils which indicate that this indefiniteness of purpose, or possibly a lowered purpose, in teaching has its effect upon them. When they are asked for specific instances of lessons that they feel have made distinct and direct contributions to their character, they almost invariably cite examples that fall within the humanities. They say that this or that lesson has made them distinctly stronger. It has made them more certain of themselves in times of temptation than they otherwise likely would have been; that the withdrawal of such lessons from their fund of experience would be to them a real and specific loss. On the other hand, it is rare to find any student who has had high-school science who will attach anything like the same value to the lessons he has had upon the grasshopper, the earth-worm, the beetle, the dandelion, or the oak tree. They are generally ready to say, still further, that, so far as they can see, these lessons might be blotted out from their experience without affecting in the least their status as moral beings.

I certainly have no desire to overstate the case, but I am decidedly of the opinion that we have here the real reason why science has such a tremendous struggle to maintain itself in the curriculum. It matters not how ignorant the teacher may be, he generally has, at least, vague notions that it is his *chief* business to turn out people of good moral character. He therefore devotes whatever energy and skill he may possess to the presentation of those subjects which, as he has been taught, lead to that end, and everything else is left to become the incident, or rather the accident, of the curriculum.

That we may see what has brought this state of things to pass, it is only necessary to enumerate briefly the stock reasons that are usually given for the teaching of science. In the pre-evolutionary period, all things in nature were considered almost entirely as having a peculiar relation to man. They were classified broadly into the useful and the useless. In the former there was always a strong selfish interest: toward the latter there were feelings of indifference, if not positive hostility.

With the advent of Darwin's *Origin of Species*, a new interest was aroused that, for the popular mind, was derived chiefly from

those novelties of animal and plant life which this book so strikingly portrays. It is quite probable that most teachers even today depend more upon the novelties of nature as a means of interesting their pupils in their subject than upon any other one means.

Still further, it is claimed that a great mission of science is to train the pupil in the art of seeing — that its distinct mission is to minister to the senses. That the work in science came into prominence at a time when such training was bitterly needed no one will deny, and neither will anyone claim that its value in sense-training has been overestimated.

It is urged, too, that the constant dealing with the realities of nature tend to beget an accuracy in statement, and in all forms of expression, that is directly conducive to a high moral tone. This reason is probably the corner-stone upon which, so far, the claims of science to moral training have chiefly rested.

The reason for the study of science, however, that has made the strongest appeal is probably found in its bearing upon the practical and economic affairs of life. Its enormous influence for good in all that we prize in material affairs is apparent to the dullest mind. The rapid development of technical schools within a generation is the strongest possible evidence as to a sincere belief in the value of a scientific education.

Finally, it is often said that nature is the embodiment of truth; that in studying science we are dealing with the eternal verities, and the effect of this must necessarily be intrinsically moral.

It is interesting to inquire whether these reasons just enumerated either separately or taken together are sufficient to give science a standing in the curriculum on as high moral grounds as that which is supposed to be occupied by the so-called humanities. While each of the reasons given may make it apparent that science is a valuable and even necessary study, it will be seen that they may be explained as mere incidents in the situation. It is no longer possible to present nature to our pupils in the two classes, *the useful* and *the useless*, because these are now known to be but relative terms, and they express but accidental relations rather than those belonging to a great design. Thus the amiability and strength of the horse are the accidents of creation which made him useful. These characteristics were developed under influences that are not wholly understood, and it has happened that man has for a time

availed himself of the advantages offered by these qualities. But it is conceivable that the development of the automobile and its successors may seriously disturb, if not entirely change, the relationship that has heretofore existed between man and the horse. Similarly, the housefly is worse than useless; it is injurious in its habit of feeding, which makes it a carrier of disease. But the ultimate solution of this difficulty will likely be through the discovery of some means of destroying the disease germ rather than in the utter destruction of all the flies. If the germs can be controlled, the flies will become harmless. It is evident, therefore, that the study of man and the other forms of life must be done in the light of some other relationship of a more fundamental character. No one will claim that the study of nature as a novelty can ever do more than afford entertainment for a passing hour. Nor is the training of the senses an ultimate reason. For, as it has been stated already, we do not study nature so much because we wish to train the senses as we do because we wish the senses to train the man. In this function, other things not usually classed as natural objects may play an important part.

As to the claims for a training in accuracy that comes with dealing with the realities of nature, it may be said that in this the demands of science are not unique. Accuracy is required in all the relations of life, and its importance is far more evident in the dealings between man and man than it is in the enumeration of the legs of a beetle. If the claims of science are to rest upon practical grounds, then what is to be said of the study of the thousand and one things in nature that interest the children, and older students too, which cannot by any stretch of the imagination be ranked with the so-called practical aspects of our lives? And, lastly, if we assert that nature is an eternal verity worthy in itself of study, are we not assuming the proposition which it might be conceived to be the business of science to prove?

If I have not misstated nor overstated the case, we find ourselves confronted with a difficult problem in education toward the solution of which but little has been done. It is evident, too, that until some common ground is reached upon which the two great divisions of learning, the humanities and science, may stand, we shall always find the parts of our curriculum at cross-purposes. If we are to unravel the difficulties of the situation, we must begin

with the fundamental point from which the humanities and science have diverged. Having arrived at this, we may be able to determine whether the divergence is necessary, and to what limits it should extend.

In the first place, it must be remembered that it was the function of all education in early times to teach dogmas which were usually summed up in the form of a creed. This was equally true of both the humanities and science. "The heavens declare the glory of God, and the firmament sheweth his handiwork," expressed the essence of a creed which for centuries held the scientific thought of the world as in the grip of a vise. In its relation to science this creed was no less exacting than the dogma set up by the humanities in regard to "the chief end of man." Modern science, however, through its slow development, gradually drew away from this creed-bound condition, and with the advent of Darwinism it suddenly broke all the bonds that remained. Then, practically, for almost the first time, men began to investigate nature with an open mind. They began to hunt for the facts unbiased by prejudice or by traditions, and utterly regardless of results. The world has never expressed even a tithe of the debt which it owes to these bold pioneers in true scientific thought and method. With almost reckless abandon they turned their backs upon all creeds and all philosophies and said: "We will know the facts. No matter whether they teach rightly or wrongly, or whether they teach anything at all, *we will have the facts.*" This independent attitude of mind was absolutely necessary that solid foundations for natural science should be laid. It was an attitude so entirely different from what had ever been assumed before by the students of nature that it is no wonder it was misunderstood. Throughout the past, the so-called facts of science had been marshaled to prove the preconceived notions of men; not only their notions regarding their relations to each other, but also to those regarding the mission and destiny of things in general and of man in particular. It is easy to understand how these scientists, divesting themselves of every ulterior purpose in the investigation of the facts of nature, should give rise to the widespread impression that they believed, therefore, that the facts themselves were without moral significance in the lives of men. From that day forth science has seemed like a purposeless study, except so far as it may incidentally minister to

our material wants. It is no wonder that the apparent indifferentism of science should seem cold and heartless in contrast with the sympathies of philosophy and the consolations of religion which watched every step of man's life through all its vicissitudes from the cradle to the grave, and even beyond. Teachers of science have been trained to take every precaution to prevent their pupils from bringing to their studies a preconceived notion. But we should remember that the preconceived notion is dangerous and obstructive in the search for truth only when it assumes the obstinacy of a prejudice. The preconceived notion as a tentative hypothesis is absolutely necessary to intelligent scientific research. The world for centuries was so anxious to identify the significance of the facts of nature with some selfish interest in human life that accuracy of observation became a secondary matter, and finally observation itself seemed even not to be necessary. As a reaction against this, most teachers of science have gone to the other extreme of attaching no importance whatever to the moral significance of these facts in the lives of the pupils. In many instances, no doubt, the pupils get the impression that there is no moral significance to be looked for; and so a large part of science-work remains vague and purposeless in their consciousness. I should be the last to reimpose upon science the task of supporting dogmas in morals or religion. I should like at this point, however, to raise the question distinctly as to whether it is not advisable to lay more emphasis, relatively, upon a rational interpretation of the facts of nature in terms of human life and character. It seems to me to be true that a study of the moral significance of the facts in their relation to human life is as much the subject for scientific research as the facts are themselves. Indeed, to go still farther, this relationship is itself a part of the fact that is studied, and no more to be parted from it than the color is to be separated from the rose. It is evident that these facts either have a significance in the upbuilding of character, or they have not. If they have, then the pupil has a right to be taught what it is, or at least how to search for it. If they have no such significance, then it is difficult to see why they should be studied at all. Even if the study of science is pursued only for the sake of the white light of truth which it is supposed to contain, such study ever must find its ultimate justification in the effect it has upon human character, good or bad; and the pupil should be so taught as to keep this end clearly in view.

In the endeavor to work out the moral bearings of science-teaching, we should be careful not to employ the utterly unscientific methods of those who teach the humanities. If there is anyone who would like to support the proposition that the humanities understand how to teach morality, I should like to have him explain why it is, after centuries of effort in which they have had it all their own way, it happens that we have so much corruption, vice, and dishonesty in public, in social, and in private life. And, in these latter days, if there are any signs of quickening of the human conscience, may it not be true that it is in part due to the enlightening moral influence of scientific knowledge? I believe that morals in the past have been badly taught, because the lessons have been enforced either through a warning to flee from the wrath to come or through an exhortation to imitate some illustrious example. The moral *forms* may be established through fear or through imitation, but morality itself is a deeper matter. The fact that somebody else is scared into certain forms of action, called moral, by the idea of future punishment is no good reason why I, too, should be scared into the same forms. Neither is there in the simple fact that George Washington would not prevaricate any real reason why I should not lie like a pirate if I wish to do so. I believe that the exceedingly shallow and primitive methods mostly employed in teaching morals belong as far back at least as the age of the stone hatchet.

It is now the privilege of science to place the teaching of morals upon as solid ground as that upon which science itself rests. It appears to me that moral relations among men represent or express nothing more nor less than the highest known adaptations among living creatures. The final lesson of science, its very last words, are *concession* and *adaptation*. In the whole gamut of life, whether we study the microscopic motes that throng the waters, or the awkward crab that fiddles his way over the sands of the beach, or the insect buzzing in the grass, or the grass itself, or the trees, or the birds in the branches, or the tender heart that proffers the cup of cold water to the thirsty wayfarer, or the glorified soul that at once sacrifices and saves itself for the weak and unfortunate—it is still a question of concession and adaptation. To recognize and abide by this fact means development and life—physical, mental, and moral; failure to do so means degradation and death—annihila-

tion. This lesson is taught as plainly and forcefully by the grasshopper, the mosquito, and the roadside weed as by the life of man. This is the ground of the new morality, which, supported by modern science, will furnish the ethical code for the twentieth century.

The supreme test for the value of nature-study is now at hand. For years teachers all over this country have bravely struggled to get the children in touch with nature. Books have been written by the score suggesting endless ways by which this may be done, and detailing devices to make the study interesting and pleasant; and substantial ground has been gained. During this time many burdens have been lifted from the pupils, and the teacher's work has been greatly improved. But the period of diversion is approaching an end. Not that the study of nature is to be less pleasant and interesting, but its purpose is to be more serious, more definite, more manifest.

The task now set for the friends of nature-study is great. It is not without deep-seated result that for centuries mankind has been taught that the world and the flesh have been the joint partners of the evil one. That nature-study can be a positive stimulus to the moral nature of man is a proposition resisted by the prejudices deep-rooted in the ignorance and bigotry of two thousand years. From the standpoint of moral development, man at first feared nature as something that was bent upon his eternal ruin; then he despised nature as a stifling incubus upon his spiritual life. Today he regards nature as neutral and her teachings as irrelevant. This false view has given rise to an equally false and utterly misleading classification of studies in our curriculum, namely, the humanistic and scientific. We *may* study man and the tree; but we *must* study man. This partial view must always give undue precedence to the so-called humanistic, to the corresponding detriment of the so-called scientific; whereas in the not distant future we shall find through the study of nature a proper evaluation of the so-called humanistic studies. It will be according to new standards of morality set up by a study of nature, that the true worth of all studies will be determined. When this is done, all studies will be humanistic. As long as the ancient, but now almost obsolete, dualistic conception of man's nature prevailed; as long as man the *spiritual* being was set over against man the *carnal* being, so long has the house been divided against itself. But through the study of nature—of life,

in the last analysis, human life, and its conditions — from that tiny speck, that, somehow, came into being in some sequestered spot, in a mysterious way, countless ages ago, down to the magnificent functions of a great brain that in its sympathy embraces the world, we are slowly getting rid of our primitive conception of a divided man. When at last our study shall no longer be man *and* nature, but man *in* nature, then for the first time shall we be able properly to marshal its facts as the natural means of developing the highest moral life.

APPENDIX A.

A RECORD IN NATURE-STUDY.

EXPLANATION OF FIG. 7.

THE three charts above the landscapes record graphically the observations of certain meteorological phenomena for April, May, and June. The narrow vertical strips are eighteen inches long and represent (arbitrarily) the day of twenty-four hours. Upon the lower part of the strips (blue on the chart) is measured off the correct proportion to represent the length of night. What remains above (yellow on the chart) represents the daylight. Upon the latter the cloudy days and the rainy days are represented respectively by the lighter and darker shades of gray. The straight horizontal line represents the freezing-point. Above and below this, at either end, the edge of the card is graduated as a thermometer. The upper zigzag line shows the curve of mean temperature, and the lower one shows the barometric curve, the card at one side being scaled as a barometer.

Between the two lines, arrows are placed which indicate the direction of the wind. Various relationships are easily worked out. The wind that oftenest accompanies clouds, rain, or sunshine; the combination of events that accompanies the low or the high temperatures; the rise and fall of the barometer, and the rise and fall of temperature; the relation of both these curves to cloudiness and rainfall; the gradual change in the length of day and night, absolute and relative; the bearing of all combined upon the landscape pictured below — these and many other comparisons may be made at a glance, and all reveal the close interdependence of the phenomena of nature.

Above these charts, by means of the skiameter, the relative distribution of sunshine for the latitude of Chicago is shown for each month. Since the intensity varies with the distribution, and the ratio of the April rectangle is to that of June as 15 to 12, it follows that the intensity of the latter month is one and a fourth times the intensity of the former. In other words, the sunshine that does duty on a fifteen-acre field in April will cover only about twelve acres in June.

At the left of the chart, three drawings show the slant of the sun's rays for each of the three months, and also the area that each beam covers.

The Mason jars below the landscape illustrate graphically the rainfall. Each jar contains the quantity of water that fell in a month on an area of twenty-four square inches, January being on the left. The upper row shows the average for each month during a period of thirty years. The lower row shows the rainfall by months for the year 1901. The upper row shows what

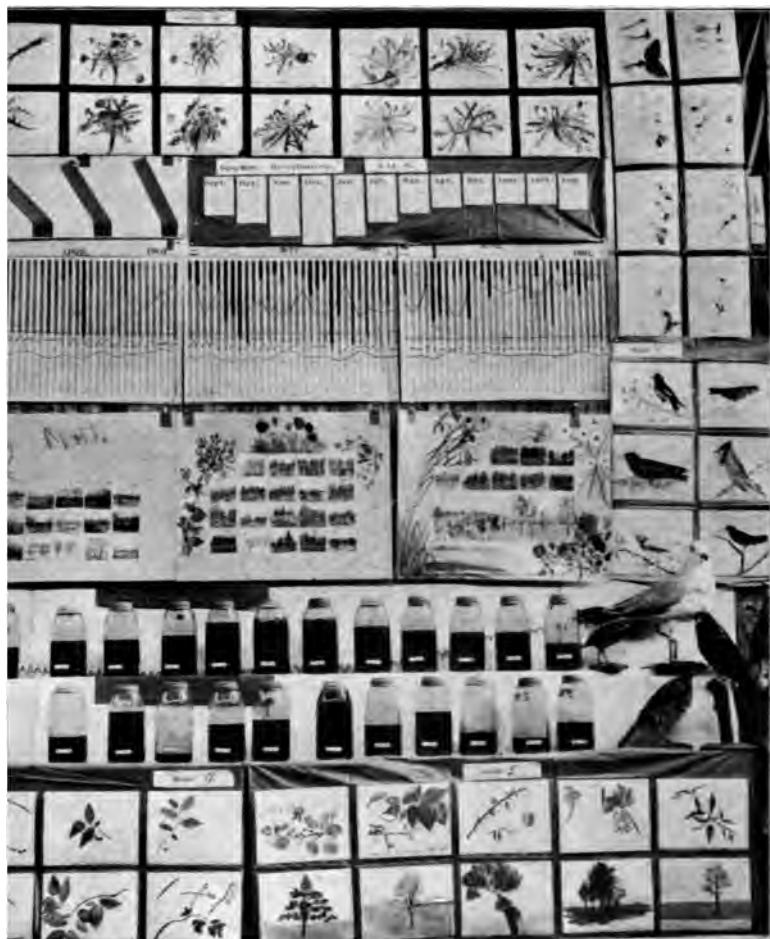
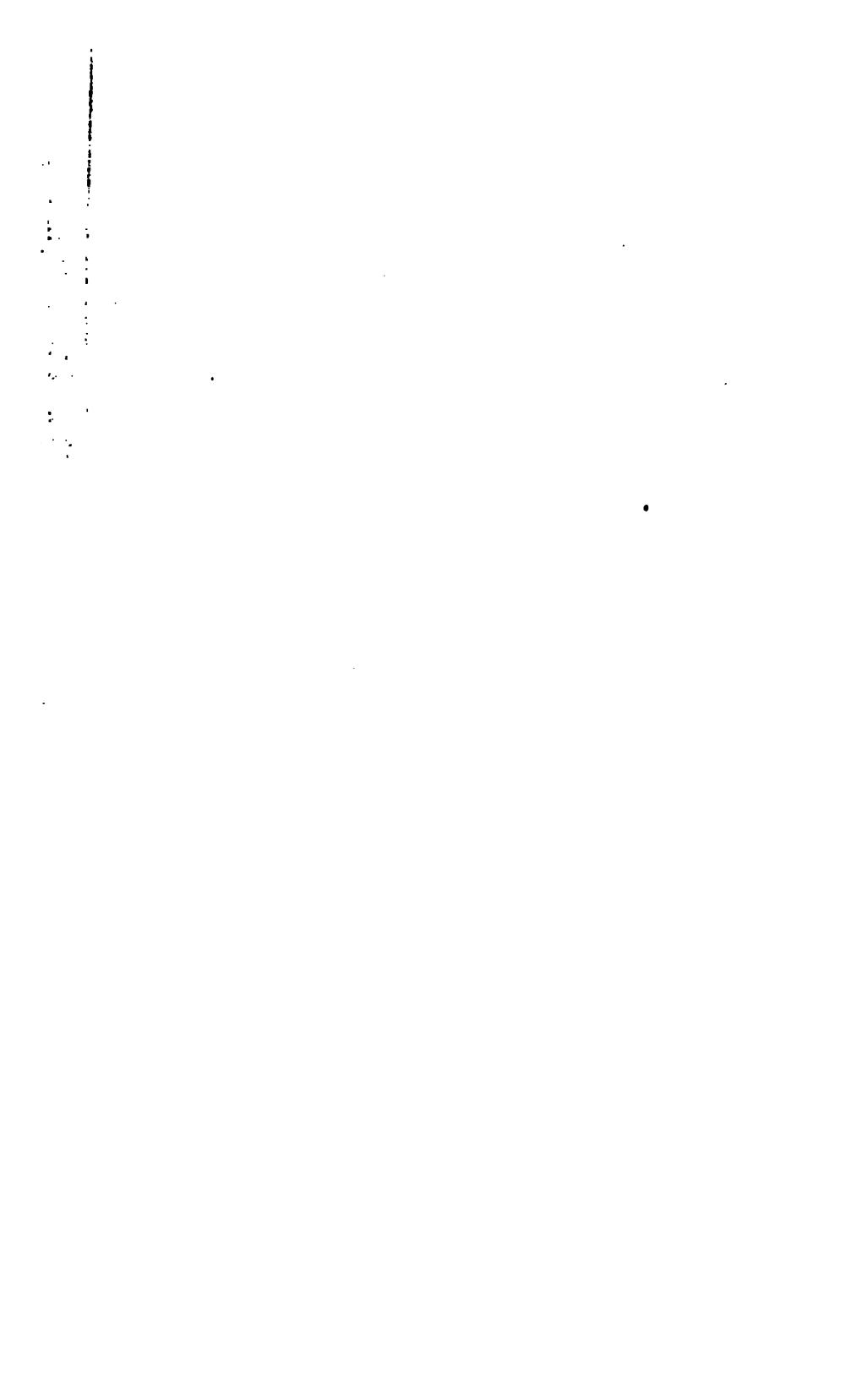


FIG. 7.—A Record in Nature-Study.



nature promises; the lower one shows how she performs — at least how she did in 1901. During the growing season, the months are marked by important events — as, for example, germination of seeds, opening of buds, flowering, insect-development, ripening of fruit. The variation in the rainfall from the average, as told by the jars, shows how the plant and animal world, ourselves included, is subjected to great strains. It gives a striking meaning to the phrase "struggle for existence."

In the upper right-hand corner the story of the seedlings for these months is told by some plants selected from the garden. At the upper side a series of paintings shows the chapters of the dandelion's history, which represents a large number of plants that spring from roots which have survived the winter. At the bottom, the unfolding of the buds, the story of how the plant makes friends with the sunshine during these months, is told in a similar way. On the right, a few of the birds and the opossum give something of completeness to the season's pictures.

Associated with the observations of the development of plant life are records of the temperature, not only of the air, but also of the soil at different depths and of the water in the ponds. By these means the really complex nature of the environment of the living thing comes to be better understood, and the sensitiveness and plastic character of the organism grow to be more thoroughly appreciated.

APPENDIX B. COURSE OF STUDY.

IT is practically impossible to prepare in detail a schedule of work in nature-study that will have much value beyond that of suggestion. The aspects of nature vary greatly, and the subject-matter selected for the curriculum must vary in a way that corresponds.

The following outlines, selected from a year's work given in the author's *Nature Study and Related Subjects*, are submitted with a view to indicating certain typical selections of subject-matter based largely upon seasonal conditions, and also the relations of other subjects to nature-study. It must be understood that this is not an attempt to make nature-study the organizing center of the curriculum; it merely tries to show some of the things which the pupil will be interested in, most likely, and it offers suggestions as to how some other subjects may be used to assist in the development of the nature-picture. Three months, September, January, and June, representing the extremes of seasonal conditions are presented. These charts and the remaining ones for the year are described in detail in the author's book above noted.

REFERENCES FOR SEPTEMBER.—(Numbers correspond to those found in the charts, Appendix B.) (1) Population of an Old Pear Tree (Macmillan); (2) Readings in Nature's Story Book (American Book Co.); (3) Living Creatures of Land, Water, and Air (American Book Co.); (4) Flyers, Creepers and Swimmers (American Book Co.); (5) This Continent of Ours, King; (6) Entertainments in Chemistry (Interstate Publishing Co.); (7) World of Matter (D. C. Heath & Co.); (8) Normal Course in Reading (Silver, Burdett & Co.).

REFERENCES FOR JANUARY.—(1) Seaside and Wayside, No. 4 (Heath & Co.); (2) Seaside and Wayside, No. 3; (3) Readings in Nature's Story Book (American Book Co.); (4) Normal Course in Reading; (5) Hooker's Child's Book of Nature (American Book Co.); (6) Story of our Continent (Ginn & Co.); (7) Storyland of the Stars, Pratt; (8) Stories Mother Nature Told Her Children (Lee & Shepard); (9) First Book in Geology (Heath & Co.); (10) Monteith's Science Readers; (11) King's Geographical Reader, No. 2 (Lee & Shepard); (12) Common Minerals and Rocks (Heath & Co.); (13) Leaves and Flowers (American Book Co.); (14) Fairyland of Science (Appleton); (15) Heart of Oak, Book I (Heath & Co.); (16) Heroes of Science; Botany, Geology, Zoölogy (E. & J. B. Young & Co., New York); (17) Normal Course in Reading; (18) Pioneers of Science, Lodge. On Foods: Human Body, Martin (Holt & Co.); Chemistry of Cooking and Cleaning, Richards (Estes & Lauriat).

SEPTEMBER.
THOUGHT WORK.

Subject	Gen. Special	ZOOLOGY	BOTANY	GEOGRAPHY	PHYSICS	CHEMISTRY
SUBJECT	Special	Insects. List of birds in the neighborhood.	Relation of the flower to the fruit. Insect depredations on plants.	Distribution of fruits.	The spectrum. Use of the prism. Use of compass.	Chemical change illustrated in finding the ash in fruits. Chemical properties of the ash.
CONCEPT		The adaptations of animal life through form and color.	The transformation of parts of the plant for special functions.	Fruits as affected by climate.	Relation of color to light. Direction.	The composite nature of fruits.
COLLECTIONS		Insects of all kinds; especially butterflies. Materials for an aquarium, tadpoles, fishes, crayfishes, and turtles.	Seeds and all kinds of fruits. Leaves and flowers. Nuts.	Pictures showing fruit trees of various kinds, and the manner of cultivation. Also the various nut-bearing trees. Fruits and nuts.	Leaves and fruits showing different colors.	The apple, peach, plum, pear, quince, melon, squash, egg-plant.
APPARATUS		Drying boards for insects. Insect nets. Cyanide bottles. Insect trays. Jars for aquaria. Collecting boxes.	Boxes for preservation of seeds.	Sandpans for modeling. Clay for modeling.	Prism, mirrors, and lenses.	Scales, Drying trays. Batteries dishes or porcelain crucibles.
GENERAL	General	Flight and other modes of locomotion of insects. Compare with birds. Food and feeding of animals. Colors as related to plants.	Colors of flowers as related to the visiting insects. Colors of fruit—unripe and ripe.	Influences of position as seen in ripening fruits. Ripening of same fruits in different parts of the country.	Colors appearing in fruits, flowers, leaves, and animals compared with spectrum.	The decay of fruits. The amount of ash left after burning wood and coal.
OBSESSION	Special Experiment	Organs of insects for feeding and locomotion. Structure of wings in different insects—butterfly, beetle, grasshopper, fly, bee.	Parts of a fruit. The modifications of the leaf. Work of insects upon the leaf and fruit.	Location of fruit belts. Study of the geographical origin of cultivated fruits.	Study of conditions under which the spectrum is formed. Recomposition of spectrum by means of concave mirrors and convex lens.	Weigh and dry definite am'nts of fruits. Burn definite w'ghts of fruits. Obtain amount of water, dry solid and ash in each.
READING		A Tragedy in the Grass.* (1) Miracles of the Butter-fly. (2) Muscular Strength of Insects. (3) Butterflies and Moths. (3)	Fruit and Grain Destroyers. (4) How Plants Employ Insects to do their Work. (2) The Fruit. (2)	Some industries of Canada. (5) The People of Mexico. (5) From St. Louis to St. Paul. (5)	"Sunbeams and Their Work."—Fairyland of Science. (Buckley.)	The Chemistry of Yeast. (6) A Lesson in Chemistry. (7)
HISTORY LITERATURE		Grasshopper and Cricket.—Leigh Hunt. The Humble Bee.—Emerson. The Katydid.—Holmes.	Field Flowers.—Campbell. To Daisy Elephants.—Palmer. To the Fringed Gentian.—Bryant.	The Mountain Monarch.—Palmer. The Apple.—Burroughs.	"Light," Echoes of Half a Century.—Palmer.	Apples in the Cellar.—Holland.
MORALS AESTHETICS		It seems as if that day was not wholly profane, in which we have given heed to some natural object. The fall of snowflakes in a still air preserving to each crystal its perfect form; the blowing of sleet over a wide sheet of water, and over plains, the waving rye-field, the mimic waving of acres of houstonia whose innumerable florets whiten and ripple before the eye; the reflections of trees and flowers in glassy lakes; the musical steaming odorous southwind which converts all trees into wind harps; the crackling and spouting of hemlock in the flames; or of pine logs which yield glory to the walls and faces in the sitting room—these are the music and pictures of the most ancient religion.— <i>Kullervo, Essay on Nature.</i>				

*Numbers refer to lists of books given on page 84, Appendix B.

SEPTEMBER.
THOUGHT WORK.—*Continued.*

Subject	Special	Gen.	METEOROLOGY	ASTRONOMY	GEOLoGY	MINERALoGY	
			Daily record of observations on the weather.	The equinox. Slant of the sun's rays.	General aspects of the surrounding country.	Mechanical constituents of soil.	
CONCERT			Relation of the weather to the appearance of the landscape.	Relation of the changing slant of the sun's rays to meteorological conditions.	The forces that have determined the present appearance of the country.	The means by which rock and vegetable products become mixed.	
COLLECTIONS			The maps of the Weather Bureau.		Various rocks and stones associated with different kinds of soils.	Samples of soil and subsoil.	
APPARATUS			Thermometer. Barometer. Hygrometer. Wind vane	Shadow-stick.	Boxes for specimens.	Sieve 1-10 inch mesh. Sieve 1-30 inch mesh. Scales.	
OBSERVATION	General		Effect of temperature and moisture upon ripening and coloring of fruits and leaves.	Position of sun on meridian and on the horizon. Eclipse of moon. Venus evening star. Jupiter morning star.	Slope of land. Direction of streams. Kinds of rock exposed.	Soil associated with best plant growth. Animal life in the soil.	
	Special—Experiment		Find amount of rainfall; relative humidity; absolute amount of moisture in atmosphere. Kinds of clouds.	Find areas covered by given volume of sunlight at different times of the month. Find angle of sun's rays.	Test the hardness and solubility of the country rock.	Find coarse and fine gravel and sand and amount of clay and loam in samples of soil.	
READING			Clouds. (8) The Air-Breathers. (9)— <i>Kingsley.</i>	A Morning in Moonland. (10) King Sol. (10) <i>Amy Johnson's Sunshine.</i> (11) Looking for the Sun. (12)— <i>Dr. I. J. Hayes.</i>	Origin of Valleys and Lakes. (13)— <i>Shaler.</i>	" Relation of Geology to Agriculture. Its Relation to Health," Applied Geology.— <i>Williams.</i> Soils.— <i>Shaler.</i>	
HISTORY LITERATURE			Hymn to the Clouds.— <i>Palmer.</i> The Tempest.— <i>Dickens.</i>	Autumn Tides.— <i>Burroughs.</i> The Wind and the Moon.— <i>MacDonald.</i>	Glaciers of the Alps. Formation of Glaciers. Movement of Glaciers.	On the Cliff.— <i>Rossiter Johnson.</i>	
MORALS AESTHETICS			Whatsoever is beautiful is for the same reason good, when suited to the purpose for which it was intended. Whatsoever is suited for the end intended, with respect to that end is good and fair; and contrariwise it must be deemed evil and deformed when it departs from the purpose which it was designed to promote.— <i>Socrates.</i>				

SEPTEMBER.
FORM WORK.

	ZOOLOGY	BOTANY	GEOGRAPHY	PHYSICS	CHEMISTRY
Form	Geometric form of the wing; proportions of parts. Meaning of the form and proportions. Form and proportions of the bodies of insects.	Geometric forms and proportions in various fruits and leaves. The meaning of these forms and proportions.	Relief forms in continental areas.	The form of the prism. Size of its angles. Forms of mirrors used.	
Number	Prevailing colors of insects. Relation of insect coloration to colors of flowers and plants in general. Varieties of insects.	Proportion of leaves on different kinds of trees partly eaten by insects. Fruits injured by insects. Proportion of water and dry solids in different kinds of fruits.	Relative value of the various fruits produced in the United States. Relative production in different fruit regions. Fall crop regions.	Primary colors. Colors found in fruits. In the landscape.	Proportions of ash in fruits. Ratio of ash to dry solid; to the water.
Making Models	Forms of the bodies of animals studied. Drying board for insects.	Fruits and leaves studied. Trays for drying fruits.	Maps showing fruit areas.	Make a prism and mount it. Make a magnetic needle.	
Drawing	Show structure of insect as a whole and in its parts: e. g., wing, foot, leg, mouth.	Fruits and leaves. Fruits in various sections to show structure.	Maps showing distribution of fruits and grains.	Drawing of rays of light in their course through the prism.	Drawing of apparatus.
Color	Animals conspicuous by color. Show adaptation of color.	Flowers, fruits and leaves. Landscape effects prod'c'd by plants.	Landscape colors.	The spectrum.	
Writing	How animals hide themselves. How animals move—walking, flying. How insect flight differs from that of birds.	How different fruits are formed. How insects use leaves and stems.	Preparation and shipment of fruits to market. Preparation of fruits for food.	The combinations of colors in a September landscape.	How to find the ash in fruits.
Language	Study of the language forms necessary in all written and oral expression which occurs in the study of all subjects. Choice of words; spelling; capitals; pronunciation; punctuation; sentence; subject and predicate; paragraph; figures of speech. Function of words—parts of speech. Relations of words.				
Music	“Hunting Glee.” National Music Reader No. 4.	“The Hunter and the Wild Rose.” National Music Reader No. 4.	“The Field and the Wood,” National Music Reader No. 4.	“Autumn,” National Music Reader No. 4.	“The Sad Leaves are Dying,” Public School Music Course No. 5.
References	Birds Through an Opera Glass.— <i>Merriam</i> . Home Studies in Nature.— <i>Treat</i> . Fairyland of Science, chap. ix.— <i>Buckley</i> . Darwinism.— <i>Watlace</i> . Humboldt Lib.	How to Know the Wildflowers.— <i>Dana</i> . Flowers, Fruits, and Leaves.— <i>Lubbock</i> . Introduction to Botany.— <i>Spalding</i> . Recreations in Botany.— <i>Crocos</i> . Fairyland of Science.— <i>Buckley</i> , chap. vii.	Handbook of Commercial Geography.— <i>Chisholm</i> . Java, the Pearl of the East.— <i>Higginson</i> .	Six Lectures on Light.— <i>Tyn-dall</i> .	“Decay in the Apple Barrel,” Popular Science Monthly, May, 1903. Remsen’s Chemistry. <i>Cooke’s</i> Laboratory Practice. First Book on Chemistry.— <i>Shaw-Brewster</i> .

SEPTEMBER.

FORM WORK.—Continued.

	METEOROLOGY	ASTRONOMY	GEOLOGY	MINERALOGY
Form	Cloud forms at different times of the day.	Varying form of the moon. Size and variation of the angle of the sun's rays.	Relief forms	Forms of weathered minerals and rocks. Meaning of the forms.
Number	Compare the rainfall by weeks. Ratio to the annual rainfall. Amount of water to an acre. Humidity of the atmosphere.	Ratio of length of day to that of the night. Rate of change in day's length during the month. Variation in size of angle of noon rays.	Comparison of various areas having natural boundaries in the neighborhood.	Proportion of sand, gravel and clay in soil studied.
Making Modeling	Make a hygrometer. Rain-gauge. Barometer.	Make a shadow-stick.	Make boxes and trays for specimens.	Make sieves for analyzing soils.
Drawing	Drawing of cloud forms. Of instruments to be used in making.	Varying angle of noon rays of sun. Moon's phases.	Various natural areas studied.	
Color	Cloud effects in color at different times during the day.	Sky colors.	Landscape effects produced by soil and rock.	Landscape effects produced by soils.
Writing	Compare the meteorological conditions of September at Chicago with other regions.	How the moon changes in one month.	How soil is made from rock.	How soils are mingled.
Language	Study of the language forms necessary in all written and oral expression which occurs in the study of all subjects. Choice of words; spelling; capitals; pronunciation; punctuation; sentence: subject and predicate; paragraph; figures of speech. Function of words—parts of speech. Relations of words.			
Music	"When Comes Refreshing Rain," National Music Reader No. 4.	"Song of the Stars," National Music Reader No. 4.	"The Mountainer's Song," Public School Music Course No. 6.	"Nutting Song," Public School Music Course No. 6.
References	Elementary Meteorology.— <i>Davis</i> . Instructions to Voluntary Observers, U. S. Weather Bureau, Fairyland of Science, chap. iv.— <i>Buckley</i> . Forms of Water.— <i>Tyn dall</i> .	Teacher's Manual of Geography.— <i>Redway</i> . Starland.— <i>Ball</i> . Astronomy.— <i>Newcomb</i> . Briefer Course.	Shall We Teach Geology.— <i>Winchell</i> . Geological Story.— <i>Dana</i> . Aspects of the Earth.— <i>Shaler</i> .	Common Minerals and Rocks.— <i>Crosby</i> . Crosby's Tables.

JANUARY.
THOUGHT WORK.

Subject	Gen. Special	ZOOLOGY	BOTANY	GEOGRAPHY	PHYSICS	CHEMISTRY
CONCEPT		Foods, kinds, preparation. Respiration.	Winter condition of plants. Buds, bark, twigs.	Sources of different kinds of food. Climatic influences upon food required.	Air, its physical properties,— elasticity, pressure, mobility.	Tests for starch and albumen. Hydrogen a constituent of water.
COLLECTIONS		The income of the organism. Organization of living matter. Storing of energy.	Resting state of living matter.	Adaptation of organism to different geographic conditions.	Energy acting through the atmosphere.	Chemical change.
APPARATUS		All the different varieties possible. The proportions necessary for a day's fare.	Buds, Twigs. Seeds.	Samples of food that can be preserved in jars and otherwise. Represent different regions if possible, e. g., rice, coffee, tea, wheat, corn, molasses, etc.	Toy balloons. Rubber balls.	Varieties of starchy foods. An egg. A small piece of lean meat.
OBSERVATION	General	Scales for weighing. Receptacles for holding different kinds of foods,— jars, bottles, etc.	Sharp knife for cutting buds and twigs. Magnifying glasses.	Maps and drawing materials.	Glass tubing 1 ft. long, 1 in. diameter for pump stock. Smaller tubing. Rubber tubing two ft. in length. Bottles and quart jars.	Test tubes or small bottles. Scraps of zinc or nails. One oz. iodine tincture. One oz. hydrochloric acid. Alcohol lamp.
	Special-Experiment	The kinds of foods used at home. Kinds in the markets. The necessities. The luxuries. Modes of cooking. Times of eating. Movements in breathing.	Appearance given to the landscape by trees. Appearance of buds, of twigs, of bark.	Location of places producing different foods. Countries with similar food supply. Location of ores and mining regions. Places on the snow line in January.	Observation of a pump. Visit a fire engine. Note working of air-brake. Working of gates at R. R. crossings.	Changes produced in food by cooking. Hardening of meats and eggs. Tests for impure air; odor; mental effects.
READING		Weigh out the proper amount of food for one meal. Arrange these in proper vessels in three groups showing the three meals. Visit Field Museum, Dept. of Physiology.	Dissect the buds to find the living parts. Dissect the twigs and determine the living parts.	Use maps in locating regions of the various food supplies. Locate mining regions. Snow line in January.	Use tubing to make a pump. Use tubes by suction to show air pressure. Use quart jar and tubing to find out quantity of air breathed.	Apply iodine tincture to starchy foods. Apply heat to albumen of egg and meat. Apply the lime-water test to the breathed air. Take air from various parts of the room.
HISTORY LITERATURE		Food of animals. (1) The Alligator. (2) The Vampire. (3) How the squirrel eats his food. (4)	Food of plants. (2) Leafbuds and covering of buds, leaves and flowers. (3)	Story of our Continent, chap. I (6) Productions of the West Indies. (1)	Hooker's Child's Book of Nature. Part III. chaps. iv to vii. (5) Aerial Ocean in Which We Live. (14)	

JANUARY.
THOUGHT WORK—*Continued.*

SUBJECT	SPECIALLY GEN.	METEOROLOGY	ASTRONOMY	GEOLGY	MINERALOGY
		Effects of weather upon demand for food. Effects upon productions.	Effect of season changes upon food required.	Fossil plants as a history of life on the earth.	Testing minerals. Ores.
CONCRECT	Collections	Sensitiveness of the organism to meteorological influences.	Changing relation of the earth and sun.	Persistence of life upon the earth. Time included in life history on the earth.	Contrast between the organic and the inorganic.
APPARATUS	General	Rain gauge. Barometer. Thermometer. Hygrometer. Weather maps.	Shadow-Stick. Ruler. Brass Protractor.	Jars for holding water and sand to show how leaves and other forms may become imbedded.	Acid. Alcohol lamp. Blowpipe. Charcoal. Forceps.
OBSERVATION	Special Experiment	Influence of the weather upon the appetite. Influence upon mental and physical activity. Character of the rain. Kinds of clouds. Forms of snowflakes. Frost crystals.	Points on the horizon of sunrise and sunset. Moon's phases. Venus evening star. Mars and Jupiter. Constellations.	Burial of sticks, leaves and other forms in mud and silt. Visit coal yards and quarries and the lake shore in search of fossils.	Uses of metals of various kinds. Iron, lead, brass, copper, tin, zinc in machines and in manufactures.
READING		Measure the rainfall. Depth of snow. Measure the humidity with hygrometer.	Measure slant of sun's rays. Note length of day and night.	Into a jar of water sprinkle sand or silt and illustrate how leaves and twigs or bones may be buried.	Test the ores as to solubility, fusibility, hardness, etc.
HISTORY. LITERATURE.		Clouds and Rain. (4)	Storyland of the Stars.— <i>Pratt.</i> (7)	Story of the Amber Beads. (8) Earth Building. (1) A mountain of fossils. Written in Rocks. (1) Footprints in the Sand. (1) Fossils. (9)	Mining. (10) Common Minerals and Rocks. (18)
MORALS. AESTHETICS.		Snowflakes. (2) Rime of the Ancient Mariner. — <i>Coleridge.</i> The First Snow-fall.— <i>Lowell.</i> Blow Blow Thou Winter Wind.— <i>As You Like It.</i>	What Can I Do. (2) Copernicus. (18) The Silver Boat. (7)— <i>M. F. Butts.</i> Hesperus' Song.— <i>Ben Jonson.</i>	Life of Steno. (16) The Petrified Fern.— <i>Mary Bolles Branch.</i>	Flint and Steel.— <i>Saxe.</i>

In nature, all is useful, all is beautiful. It is therefore beautiful because it is alive, moving, reproductive; it is therefore useful because it is symmetrical and fair. Beauty will not come at the call of a legislature, nor will it repeat in England or America its history in Greece. It will come as always, unannounced, and spring up between the feet of brave and earnest men. It is in vain that we look for genius to reiterate its miracles in the old arts; it is its instinct to find beauty and holiness in new and necessary facts, in the field and roadside, in the shop and mill.—EMERSON, *Essay on Art.*

JANUARY.
FORM WORK.

	ZOOLOGY	BOTANY	GEOGRAPHY	PHYSICS	CHEMISTRY
FORM	Forms of fruits used as food as wholes and in sections.	Geometric forms found in buds and their sections. Form in section of twigs showing mode of growth.	Vertical and horizontal forms of natural divisions.	Forms occurring in apparatus. Circle, rectangle, cylinder. Relation of form to function.	.
NUMBER	Cost of a meal; of each article of food; of a day's board; board for a week, month, year. Cost for a family.	Compare number of buds frost-killed with the number of buds still alive on last year's growth.	Areas of the regions producing different foods compared. Mining regions.	Amount of air breathed each respiration. Examples showing elasticity of air. Diameters of the chest in various phases of respiration, before and after exercise.	
MAKING MODELING	To show bulk of food needed. Fruits used as food.	Forms of buds, twigs and seeds.	Sand modeling maps. Show relief of different food areas.	Make suction and force pumps. Siphon. Form of the chest; relative diameters in respiration.	Apparatus for making hydrogen.
DRAWING	Fruits used as food.	Sections of buds, and twigs showing location of living material.	Maps showing location of food producing regions. Mining regions.	Apparatus needed to show properties of air. Essentials of a fire engine; of an air brake; of R. R. crossing gate. Pumps showing valves. Barometer.	Apparatus needed for making hydrogen.
COLOR	Colors of fruits used as food.	Paint sections of buds and twigs to show living parts.	Landscapes. Winter colors.		The color of starch in the test with iodine.
WRITING	Preparation of food. Time of eating with different animals. Flesh eaters. Vegetarians. Summary of work.	Winter aspects of plants. The woods in winter. Summary of observations.	Foods of different nations. Modes of eating. Modes of cooking.	Description of a fire engine. Description of an air brake. Description of a lifting pump. Description of a barometer. Summary of experiments.	Hydrogen compared with oxygen. How hydrogen is prepared.
LANGUAGE	Study of the language forms necessary in all written and oral expression which occurs in the study of all subjects. Choice of words; spelling; capitals; pronunciation; punctuation; sentence, subject and predicate; paragraph; figures of speech. Function of words—parts of speech. Relations of words.				
MUSIC	"Nature gives no sorrow."—Nat. Mus. Course No. 1.	"Evening Prayer in the Forest."—Nat. Mus. Course No. 4.	"Midwinter."—Nat. Mus. Course No. 2.	"What God performs."—Nat. Mus. Course No. 4.	"Winter Song."—Nat. Mus. Course No. 2.
REFERENCES	Life in Nature. <i>Humboldt Lib.</i> — <i>Hinton</i> . The Study of Animal Life.— <i>Thompson</i> . The Human Body.— <i>Martin</i> . "Air and Life." Smithsonian Rep. '93.	A Year with the Trees.— <i>Flagg</i> . Aspects of the Earth.— <i>Shaler</i> .	Geographical Reader.— <i>Yohonnot</i> . Geographical Readers.— <i>King</i> . Aspects of the Earth.— <i>Shaler</i> .	"Breath and Breathing." Sci. for All. Vol. IV. Conservation of Energy. <i>Humboldt Lib.</i> — <i>Balfour Stewart</i> .	Entertainment in Chemistry.— <i>Tyler</i> . Chemistry of Common Life.— <i>Johnson</i> . First Book in Chemistry. <i>Shaw-Brewster</i> . Foods.—International Sci. Series. Chemistry at

JANUARY.
FORM WORK.—*Continued.*

	METEOROLOGY	ASTRONOMY	GEOLGY	MINERALOGY
FORM	Cloud forms. Compare with previous months.	Angles formed by slant of sun's rays. Compare with previous months.	Forms of fossils. Ferns.	Forms of crystals.
NUMBER	Averages of daily records. Compare with previous month. 10 inches snow = 1 inch rainfall. Compare rainfall and humidity with previous months.	Compare slant of sun's rays and day's length with slant and length in previous months.	Estimated rate of erosion in N. A. 1 ft. in $5,000$ yrs. Estimated length of time to unearth a carboniferous fossil.	Relative weight of ores. Specific gravity.
MAKING MODELING	Chalk-model cloud forms.	Make shadow-stick.	Fossil forms. Imprint leaves in clay and dry or bake.	Crystal forms.
DRAWING	Maps showing isotherms, and course of storms. Snow crystals. Cloud forms.	In a large circle draw radii showing changing slant of sun's rays during month. Moon's phases.	Fossil plants found in coal, slate, and elsewhere.	Crystal forms.
COLOR	Cloud colors. Sky colors—sunset, sunrise.	Color of the planets.	Color of fossil remains.	Colors of ores and metals.
WRITING	The storms for the month. How to predict the weather. Why the wind veers.	Summary of changes during the month. Comparison of the appearance of the planets; their apparent motions.	The earth history suggested by a fossil plant.	How ores are smelted. How ores are mined. Mineral wealth compared with other resources.
LANGUAGE	Study of the language forms necessary in all written and oral expression which occurs in the study of all subjects. Choice of words; spelling; capitals; pronunciation; punctuation; sentence, subject and predicate; paragraph; figures of speech. Function of words—parts of speech. Relations of words.			
MUSIC	"Evening Shades are Falling."—Nat. Mus. Course No. 4.	"The Evening Star."—Nat. Mus. Course No. 1. "Evening."—Nat. Mus. Course No. 4.	"God the Lord."—Nat. Mus. Course No. 2.	
REFERENCES	Elementary Meteorology.— <i>Davis.</i> Aspects of the Earth.— <i>Shaler.</i> Instructions to Voluntary Observers.— <i>Weather Bureau.</i>	Astronomy with an Opera Glass.— <i>Serviss.</i> Starland.— <i>Ball.</i> Cowperthwaite's Planisphere.— <i>A. Flanagan.</i>	Aspects of the Earth.— <i>Shaler.</i> The Geological Story.— <i>Dana.</i>	World of Matter.— <i>Ballard.</i> Common Minerals and Rocks.— <i>Crosby.</i> Mineral Resources of the U. S. (Reports.) Applied Geology.— <i>Williams.</i>

JUNE.
THOUGHT WORK.

SUBJECT	Gen. Special	ZOOLOGY	BOTANY	GEOGRAPHY	PHYSICS	CHEMISTRY
		Insect life. Use the tree as a center for study.	Plant Physiology. Passage of water through the plant.	Conditions of life at this season. Various stages of crop growth.	Electricity, Frictional and Voltaic.	Chemistry of a battery.
CONCEPT		Inter-relations of animals and plants.	Vital functions in the plant.	Relations of crops to geographic conditions.	Nature of electrical energy.	Chemical change as a source of energy.
COLLECTIONS		Butterflies, moths, bees, beetles. Insect eggs. Young larvae. Grasshoppers. Dragonflies.	Different kinds of seedling plants. Oak, maple and ash seedlings one year old. Use sunflower plant. Study of flowers.	Pictures showing growing crops of various regions at this season.	Bottles, wide-mouthed, or jars. Small-sized copper wire with insulation. Glass tubes and sealing wax.	Pieces of copper and zinc. Bottles. Acid.
APPARATUS		Frame for mounting insects. Poison bottle. Nets for insects. Jars and boxes for insect and larva cages.	Scales and weights. Wide-mouthed bottles. Graduate for measuring water.	Sand-pans for modeling maps. Clay for modeling.	Jars or wide-mouthed bottles. Copper wire. Tubes. Zinc and copper plates for battery.	Battery outfit used in Physics.
OBSERVATION	General	Insects that infest the leaves of plants; the bark; the wood; the ground about the roots; that frequent the flowers. Depositories of eggs. Food of larvae.	The wilting of plants. Relation of leaves to sunshine. The flow of sap.	Character of vegetation in different localities. The environment and growth of annuals, biennials, and perennials.	Examination of the telephone. The telegraph. Trolley street car. The dynamo and electric motor.	Arrangement of batteries in a telegraph office. In telephone central.
	Special-Experiment	Insect mounting. Modes of flight; of walking; of securing food; of eating. Hatching of insect eggs.	Determine amount of water transpired by a seedling oak, maple, ash or sunflower. Place in wide-mouthed bottles in soil saturated with water. See Nature Study for June.	Trace on weather maps the areas of the various crops. Note the isotherms crossing each area.	Use glass rod and sealing wax and cloth to develop electricity. Connect battery with small door bell. Test the current with galvanometer. See Nature Study, p. 416.	Observe the chemical action in a simple zinc and copper battery. See Nature Study, p. 415.
READING		Wings busy and sober. (1) Flying bugs and walking sticks. (1) Wings of gossamer and gold. (1) Fruit and grain destroyers. (1)	Song and Hymn of Garden and Wood. (2) The Sexes of Plants. (3) The Arrangement of Leaves. (3) Hidden Flowers. (3)	The Central Plain and Eastern Highlands. (4) The Great Northwest. (4) Mexican Farming and Mining (4)	Electricity the Science of the 19th century, chap. I (Humboldt Lib., No. 148). <i>Ibid.</i> , chap. ii, Part II. <i>Ibid.</i> , concluding chapter.	Electricity the Science of the 19th century, pp. 79 and 84.
HISTORY LITERATURE		Birds in Spring. (1) Tom. (1) Birds at Dawn. (2) The Rochester Robin. (2)	The Ivy Green.— <i>Dickens</i> . My Window Ivy.— <i>Mary Mapes Dodge</i> . The Birch Tree.— <i>Lowell</i> .	To the Dandilion.— <i>Lowell</i> . In Stacking Time.— <i>Carland</i> . Color in the Wheat.— <i>Carland</i> . Corn Shadows.— <i>Garland</i> .	Spring.— <i>Holmes</i> . Lines on Re-visiting the Country.— <i>Bryant</i> .	After a Tempest.— <i>Bryant</i> . Summer Wind.— <i>Bryant</i> . June.— <i>Bryant</i> .

JUNE.
THOUGHT WORK — *Continued.*

SUBJECT	METEOROLOGY	ASTRONOMY	GEOLGY	MINERALOGY
CONCEPT	Thunder-storms, Lightning.	Summer solstice.	Fieldwork, Erosion.	Mechanical con- stituents of soil.
COLLEC- TIONS	Electrical conditions of earth and air.	Relations of earth to sun.	Modification of earth forms.	Relation of soil con- stituents to fer- tility.
APPARATUS	Weather Maps.		Specimens of rock showing weather- ing and wearing.	Various specimens of soils.
GENERAL	Thermometer. Barome- ter. Hygrometer. Rain-gauge. Wind Vane.	Shadow-stick. Brass protractor.	Trays or boxes for specimens.	Boxes for soils.
OBSERVATION	Formation of thunder clouds. Character of lightning flashes. Examine trees struck by lightning. Char- acter of the weather before and after such storms.	Position of sun on meridian. Note noon shadows. Position of the sun on the horizon. Change in day's length.	Visit lake or river shore. Formation of bars. Wearing of banks.	Soils producing different kinds of plants. Where the healthiest plants are pro- duced.
EXPERIMENT	Note the average daily temperature best suited for planted growth. Note amount of rainfall received.	Compare the area covered by a given volume of sunshine with the area covered by the same volume in previous months.	Collect specimens showing various phases and stages of erosion.	By means of sieves, find the amount of material, fine, medium and coarse, in different samples of soil.
READING	First Book in Geology, pp. 56-66.— <i>Shaler.</i> <i>Ibid.</i> , pp. 98 ff.	Illustrated Lectures in Astronomy.— <i>The Oxford Handy Helps.</i> The Storyland of the Stars.— <i>Mara Pratt.</i>	First Book in Geology, pp. 107-130.— <i>Shaler.</i>	First Book in Geology, pp. 1-46. — <i>Shaler.</i>
HISTORY LITERATURE	The West Wind.— <i>Gar- land.</i> Song of the Winds.— <i>Gar- land.</i> Spring Rains.— <i>Gar- land.</i>	Sundown.— <i>Gar- land.</i> Drought.— <i>Gar- land.</i> The Noonday Plain. — <i>Garland.</i> Moonlight.— <i>Longfellow.</i>	The Gladness of Nature.— <i>Bryant.</i> A Summer Ramble. — <i>Bryant.</i>	Plowing. — <i>Garland.</i> Earth.— <i>Bryant.</i>
MORALS AESTHET- ICS	<p>A true announcement of the law of creation, if a man were found worthy to declare it, would carry art up into the kingdom of nature, and destroy its separate and contrasted existence. The fountains of invention and beauty in modern society are all but dried up... Now men do not see nature to be beautiful and they go to make a statue which shall be.—EMERSON, <i>Essay on Art.</i></p>			

JUNE.
FORM WORK.

	ZOOLOGY	BOTANY	GEOLGY	PHYSICS	CHEMISTRY
FORM	Form of insect bodies. Meaning of the various forms. Advantage in locomotion, walking and flight.	Forms assumed by tree tops. Study form as determined by bud development, and angle of branches. Adaptation of leaf forms.	Forms of the various crop areas.	Most economical forms in construction of apparatus.	Most economical forms of zinc and carbons or copper used in batteries.
NUMBER	Varieties of insect life. Number that live on the leaves; that deposit eggs on the leaves; in the twigs; in the ground. Number different kinds of ground insects.	Growth of twigs per week. Lateral and terminal growth compared. Leaf area estimated from measurement. Am't of water transpired by an ordinary tree.	Comparison of deltas and other areas bearing upon the amount of erosion in various places.	Measurements necessary in various apparatus needed.	Measurements needed in battery construction.
MAKING MODELS	Model insect forms. Forms of eggs—enlarged.	Forms of leaves modeled.	Maps showing distribution of river systems, slopes, etc.	Making of apparatus.	Making of batteries.
DRAWING	Drawing of insects showing structure of parts.	Drawing of tree forms. Forms of leaves. Forms of early forming fruit.	Maps showing distribution of river systems. Location of deltas and other features relating to erosion.	Drawing of apparatus showing connections necessary for various purposes.	Drawing of batteries showing connections and relations of parts.
COLOR	Painting of butterflies, moths and other insects.	Landscape work. Trees, showing change of foliage. Leaves.	Coloration of maps showing relief, slopes, valleys and all features of erosion.		
WRITING	How insects fly. How insects walk. How insects eat. How insects are dependent upon plants.	The dependence of plants upon insects. Water in plant life.	Relation of valleys to the settlement of the country. Effect of mountains upon settlement.	Electricity compared with steam power.	Effects of chemical changes in a battery compared with effects of chemical changes in combustion.
LANGUAGE	The study of thought expression through language. The limits of the sentence. The phrase. Technical terms as needed. Choice of words; spelling; capitals; pronunciation; punctuation; sentence; paragraph; figures of speech.				
MUSIC	"The Humble Bee," Riverside Song Book.	"Summer Studies," Riverside Song Book.	"A Mid-Summer Song," Riverside Song Book.	"The Light that is felt," Riverside Song Book.	"Woodnotes," Riverside Song Book.
REFERENCES	Our Common Insects.— <i>Packard</i> . Half-Hour with Insects.— <i>Packard</i> . Comstock's Entomology. Comstock Pub. Co., Ithaca, N. Y. Distribution of Animals and Plants.—(Humboldt Lib. No. 64.)	Trees of N. A.— <i>Ager</i> . Physiological Botany.— <i>Gray</i> . Recreations in Botany.— <i>Crocey</i> . Flowers, Fruits and Leaves.— <i>Lubbock</i> . (Humboldt Lib. Nos. 161-2.)	Earth and Man.— <i>Guyot</i> . The Earth's History.— <i>Roberts</i> . Handbook of Commercial Geography.— <i>Chisholm</i> . Aspects of the Earth.— <i>Shaler</i> .	Electricity the Science of the Nineteenth Century.—(Humboldt Lib. Nos. 148-9.) The Electric Light.— <i>Ibid.</i> , No. 210. Modern Views of Electricity.— <i>Lodge</i> .	Force and Energy.—(Humboldt Lib. No. 106.) Lessons in Electricity.— <i>Tyn dall</i> . (Humboldt Lib. No. 18.) The Electric Light.— <i>Ibid.</i> , No. 119.

JUNE.
FORM WORK.—*Continued.*

	METEOROLOGY	ASTRONOMY	GEOLGY	MINERALOGY
FORM	Forms of clouds at different times in the day. Form of thunder-clouds.	Form of shadow-stick. Angles made by sun's rays at different seasons.	Forms made by erosion due to slope, hardness of material and amount of water.	
NUMBER	Rainfall; rainy, cloudy and clear days compared with previous month.	Angle of noon rays compared with preceding months. Day's length compared. Areas covered by a given volume of sunshine compared with similar areas in preceding months.	Estimate from measurements the amount of silt in suspension in different samples of water.	Various mechanical constituents of soils compared. Proper ratio of different constituents for plant life.
MAKING MODELS	Chalk-modeling of cloud-forms. Thunder-clouds.	Making of shadow-stick.	Sand-models of eroded districts observed.	Making of sieves and other necessary apparatus.
DRAWING	Maps showing distribution of rainfall and course of isotherms.	Drawings showing slant of sun's rays at noon for the different months.	Drawings showing course of streams, of lake shore and other features of erosion.	Drawing of apparatus.
COLOR	Sky colors at different times of day.		Landscape work showing features of erosion.	Landscape work showing colors due to differences in soil.
WRITING	Description of a thunder-storm.	The apparent course of the sun during the year.	Describe changes witnessed by erosion.	Relative value of different soils.
LANGUAGE	The study of thought expression through language. The limits of the sentence. The phrase. Technical terms as needed. Choice of words; spelling; capitals; pronunciation; punctuation; sentence; paragraph; figures of speech.			
MUSIC	"There is Music in the Air," Riverside Song Book.	"Softly Now the Light of Day," Riverside Song Book.	"Stars of the Summer Night," Riverside Song Book.	"The Harp at Nature's Advent Strung," Riverside Song Book.
REFERENCES	Elements of Meteorology.— <i>Davis.</i> Instructions to Voluntary Observers.— <i>Weather Bureau.</i> Lightning, Thunder and Lightning Conductors.— <i>(Humboldt Lib. No. 139.)</i>	Starlaud.— <i>Ball.</i> The Sun.— <i>(Humboldt Lib. No. 49.)</i> Romance of Astronomy.— <i>Ibid.</i> , No. 20. The Wonders of the Heavens.— <i>Ibid.</i> , No. 14.	Aspects of the Earth.— <i>Skeler.</i> Town Geology.— <i>Kingsley.</i> The Earth's History.— <i>Roberts.</i>	Applied Geology.— <i>Williams.</i> The World of Matter.— <i>Ballard.</i> Crosby's Tables.

MINUTES OF MEETINGS HELD AT ATLANTA, GA.,
FEBRUARY 22-25, 1904.

(CONVENTION HALL, PIEDMONT HOTEL.)

Four sessions of the Society were held at Atlanta. In the absence of President Jackman, Professor Reuben P. Halleck was chosen chairman, and conducted the discussions and business with marked acceptability.

The first session was held, as appointed, at 4 o'clock P. M., on Monday, February 22. The entire time was devoted to the discussion of Dr. John Dewey's paper on "The Relation of Theory to Practice in Education." This paper stirred up a good deal of vigorous thinking, and aroused, perhaps, more than the usual interest both within and outside the membership of the Society. The discussion was highly valuable in that it revealed the different points of view and methods of attacking a problem by many different persons whose aims are common, but who are often working under widely different conditions. It was found necessary to limit the speakers to five minutes each, and allow no person to speak twice as long as any who had not yet spoken wished the floor.

The meeting set for Wednesday (February 24) was changed from 2:30 P. M. to 5:30 P. M. This was to avoid conflict with section meetings of the Department of Superintendence, in which most of the members were interested.

The Monday evening meeting proved to be well attended, and there was close and progressive discussion of Dr. Dewey's paper. At this meeting there was an informal consideration of what work the Society ought to take up next. The following lines were suggested:

CHARLES DEGARMO: Since many of us are deeply interested in the preparation of teachers for secondary education, it might be well to go to that field.

F. M. McMURRY: It would be a good plan to have a thoroughgoing discussion of what is "scientific method" in the study of education.

SAMUEL T. DUTTON: (1) The field of the kindergarten and primary school; (2) how conserve the benefits of school education for adult life?

STRATTON D. BROOKS: The question of admission to the university without examination.

A. KASWELL ELLIS: Take one of our educational problems and make a thoroughgoing scientific treatment of it.

GRANT KARR: Define the psychological nature of the common-school subjects.

J. STANLEY BROWN: The time element as it affects the elementary, secondary, and college courses. The six-year course for the high school.

Other suggestions were offered, but were to be made more definite and sent to the Secretary.

On Wednesday at 5 P. M., at the regular business meeting the following officers and members of the Executive Committee were chosen:

President — Professor Wilbur S. Jackman, College of Education, University of Chicago (continued another year).

Secretary-Treasurer — Manfred J. Holmes, Illinois State Normal University, Normal, Ill.

Members of the Executive Committee, to serve for two years — Charles A. McMurry, State Normal School, DeKalb, Ill.; Reuben Post Halleck, Male High School, Louisville, Ky.

A motion was carried to appropriate fifty dollars (\$50) for the Secretary's expenses during the past year.

A motion was carried to allow the Secretary one hundred and fifty dollars (\$150) for expenses; provided, that such sum remain in the treasury after all other indebtedness of the Society has been discharged.

The discussion of Miss Brooks's paper on "The Relation of Theory to Practice in City Training Schools" brought out some helpful comparisons as to how different cities are trying to supply their schools with trained teachers. This discussion also suggested the question of having a few leaders of discussion well prepared beforehand, and ready to do justice to the paper discussed.

On Thursday, at 9 A. M., the following-named persons were elected to active membership:

Ezra W. Benedict, principal of high school, Warrensburg, N. Y.

Sarah C. Brooks, principal of Teachers' Training School, Baltimore, Md.

Edwin C. Broome, superintendent of schools, Rahway, N. J.

John F. Brown, professor in education, State University, Iowa City, Ia.

J. Stanley Brown, superintendent of Township High School, Joliet, Ill.

W. T. Carrington, state superintendent of public schools, Jefferson City, Mo.
Charles E. Chadsey, assistant superintendent of schools, Denver, Colo.
J. M. H. Frederick, superintendent of schools, Lakewood, O.
Albert Ross Hill, dean of Missouri Teachers' College, Columbia, Mo.
Homer P. Lewis, superintendent of schools, Worcester, Mass.
Elizabeth Mavity, Illinois State Normal University, Normal, Ill.
George A. Newton, superintendent of schools, Greenville, Tex.
James J. Sheppard, principal of High School of Commerce, New York, N. Y.
Waite A. Shoemaker, State Normal School, St. Cloud, Minn.
Elmer W. Walker, superintendent of State School for the Deaf, Delavan, Wis.

After informal consideration of plans and conduct of the Society, it was moved and carried that the topic for the next YEARBOOK be taken from the field of secondary education.

Annual financial statements will be printed in Part I of each YEARBOOK, published regularly for the February meeting.

LIST OF ACTIVE MEMBERS.

Edwin A. Alderman, president of Tulane University, New Orleans, La.
Zonia Baber, School of Education, University of Chicago, Chicago, Ill
Frank Bachman, Normal College, Athens, O.
C. M. Bardwell, Aurora, Ill.
R. H. Beggs, Whittier School, Denver, Colo.
Ezra W. Benedict, principal of high school, Warrensburg, N. Y.
Frank G. Blair, State Normal School, Charleston, Ill.
Frederick Bolton, Iowa City, Ia.
Richard G. Boone, Yonkers, N. Y.
E. C. Branson, Normal School, Athens, Ga.
Francis B. Brant, 1637 S. Fifteenth Street, Philadelphia, Pa.
Sarah C. Brooks, principal Teachers' Training School, Baltimore, Md.
Stratton D. Brooks, Mason street, Boston, Mass.
Edwin C. Broome, superintendent of schools, Rahway, N. J.
Elmer E. Brown, University of California, Berkeley, Calif.
George P. Brown, editor, Bloomington, Ill.
John F. Brown, State University, Iowa City, Ia.
J. Stanley Brown, Township High School, Joliet, Ill.
Martin G. Brumbaugh, 3324 Walnut Street, Philadelphia, Pa.
William L. Bryan, University of Indiana, Bloomington, Ind.
George V. Buchanan, 614 W. Seventh Street, Sedalia, Mo.
Edward F. Buchner, University of Alabama, University, Ala.
Frederick Burk, State Normal School, San Francisco, Calif.
Jesse D. Burks, 557 W. Twelfth Street, New York, N. Y.
W. H. Burnham, Clark University, Worcester, Mass.
Nicholas Murray Butler, Columbia University, New York, N. Y.
B. C. Caldwell, president of Louisiana State Normal, Natchitoches, La.
W. T. Carrington, state superintendent, Jefferson City, Mo.
Charles E. Chadsey, assistant superintendent of schools, Denver, Colo.
Clarence F. Carroll, Worcester, Mass.
C. P. Cary, state superintendent, Madison, Wis.
E. W. Chubb, Athens, O.
P. P. Claxton, Southern Education Board, Knoxville, Tenn.
David E. Cloyd, 116 Nassau street, New York, N. Y.
John W. Cook, State Normal School, DeKalb, Ill.
William J. Crane, Marshalltown, Ia.
Ellwood I. Cubberly, Leland Stanford Junior University, Palo Alto, Calif.

- Frank M. Darling, 320 W. Sixty-first Place, Chicago, Ill.
William M. Davidson, Topeka, Kan.
Washington S. Dearmont, State Normal School, Cape Girardeau, Mo.
Charles DeGarmo, Cornell University, Ithaca, N. Y.
John Dewey, University of Chicago, Chicago, Ill.
Edwin G. Dexter, State University, Urbana, Ill.
Richard E. Dodge, Columbia University, New York, N. Y.
Newton C. Dougherty, Peoria, Ill.
Augustus S. Downing, One Hundred and Nineteenth Street and Second
avenue, New York, N. Y.
F. B. Dressler, University of California, Berkeley, Calif.
Samuel T. Dutton, Columbia University, New York, N. Y.
Charles B. Dyke, Kamehameha School, Honolulu, H. I.
Andrew W. Edson, Park Avenue and Fifty-ninth street, New York, N. Y.
A. Kaswell Ellis, University of Texas, Austin, Tex.
W. H. Elson, Grand Rapids, Mich.
David Felmley, State Normal University, Normal, Ill.
Frank A. Fitzpatrick, Boston, Mass.
George M. Forbes, Rochester University, Rochester, N. Y.
J. M. H. Frederick, superintendent of schools, Lakewood, O.
R. S. Garwood, Marshall, Mich.
Charles B. Gilbert, D. Appleton & Co., New York, N. Y.
Newell D. Gilbert, DeKalb, Ill.
E. C. Glass, Lynchburg, Va.
John Glotfelter, Emporia, Kan.
J. P. Gordy, Ohio State University, Columbus, O.
James M. Greenwood, Kansas City, Mo.
W. N. Hailman, Ainsworth & Co., Boston, Mass.
Reuben P. Halleck, Boys' High School, Louisville, Ky.
Rufus H. Halsey, State Normal School, Oshkosh, Wis.
Paul Henry Hanus, Harvard University, Cambridge, Mass.
Ada VanStone Harris, city schools, Rochester, N. Y.
W. H. Hatch, Oak Park, Ill.
Mrs. Josephine W. Heermans, Brunswick Hotel, Kansas City, Mo.
J. W. Henninger, State Normal School, Macomb, Ill.
Walter L. Hervey, 320 Manhattan Avenue, New York, N. Y.
Edgar L. Hewett, Las Vegas, N. M.
Albert R. Hill, Missouri Teachers' College, Columbia, Mo.
M. J. Holmes, State Normal University, Normal, Ill.
W. W. Howe, White Hall, N. Y.
Wilbur S. Jackman, University of Chicago, Chicago, Ill.
J. I. Jegi, State Normal School, Milwaukee, Wis.

- Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.
Lewis H. Jones, State Normal College, Ypsilanti, Mich.
Grant Karr, State Normal School, Oswego, N. Y.
J. A. Keith, Northern Illinois State Normal School, DeKalb, Ill.
John R. Kirk, State Normal School, Kirksville, Mo.
Henry E. Kratz, Calumet, Mich.
Ossian H. Lang, editor, 61 E. Ninth Street, New York, N. Y.
Isabel Lawrence, State Normal School, St. Cloud, Minn.
Homer P. Lewis, superintendent of schools, Worcester, Mass.
George H. Locke, University of Chicago, Chicago, Ill.
Livingston C. Lord, State Normal School, Charleston, Ill.
Charles D. Lowry, 307 Touhy Avenue, Chicago.
Herman T. Luckens, State Normal School, California, Pa.
G. W. A. Luckey, Lincoln, Neb.
President E. O. Lyte, State Normal School, Millersville, Pa.
John A. MacVannel, Columbia University, New York, N. Y.
David R. Major, Columbus, O.
C. E. Mann, St. Charles, Ill.
Frank A. Manny, Ethical Culture Schools, 109 W. Fifty-fourth Street, New York, N. Y.
Elizabeth Mavity, State Normal University, Normal, Ill.
Guy E. Maxwell, State Normal School, Winona, Minn.
William H. Maxwell, superintendent of schools, New York, N. Y.
Charles McKenny, State Normal School, Milwaukee, Wis.
Charles A. McMurry, State Normal School, DeKalb, Ill.
Frank M. McMurry, Teachers College, New York, N. Y.
Israel C. McNeil, State Normal School, West Superior, Wis.
William A. Millis, Crawfordsville, Ind.
J. F. Millspaugh, State Normal School, Los Angeles, Calif.
Paul Monroe, Columbia University, New York, N. Y.
Will S. Monroe, State Normal School, Westfield, Mass.
Ernest C. Moore, University of California, Berkeley, Calif.
Frank Morton, Lowell High School, San Francisco, Calif.
George A. Newton, superintendent of schools, Greenville, Tex.
Theodore B. Noss, State Normal School, California, Pa.
M. V. O'Shea, University of Wisconsin, Madison, Wis.
Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
John H. Phillips, Birmingham, Ala.
John T. Prince, West Newton, Mass.
J. F. Reigart, 109 W. Fifty-fourth Street, New York, N. Y.
R. R. Reeder, Hastings-on-Hudson, New York.
C. M. Richards, 230 W. One Hundred and Fifth Street, New York, N. Y.

- Emily J. Rice, School of Education, University of Chicago, Chicago, Ill.
R. N. Roark, Kentucky University, Lexington, Ky.
Stuart H. Rowe, 30 Academy Street, New Haven, Conn.
J. E. Russell, Teachers College, New York, N. Y.
Lucy M. Salmon, Poughkeepsie, N. Y.
Howard Sandison, Terre Haute, Ind.
Myron T. Scudder, State Normal School, New Paltz, N. Y.
Levi Seeley, State Normal School, 482 W. State Street, Trenton, N. J.
Burgess Shank, Normal School, Valley City, North Dakota.
James J. Sheppard, High School of Commerce, New York, N. Y.
Waite A. Shoemaker, State Normal School, St. Cloud, Minnesota.
H. W. Shryock, State Normal School, Carbondale, Ill.
Herbert M. Slauson, Ann Arbor, Mich.
David E. Smith, Teachers College, New York, N. Y.
George M. Smith, University of South Dakota, Vermillion, S. D.
Z. X. Snyder, State Normal School, Greeley, Colo.
F. Louis Soldan, Ninth and Locust Streets, St. Louis, Mo.
Edward D. Starbuck, Leland Stanford Junior University, Palo Alto, Calif.
J. W. Stearns, University of Wisconsin, Madison, Wis.
J. R. Street, University of Syracuse, Syracuse, N. Y.
W. S. Sutton, University of Texas, Austin, Tex.
Joseph S. Taylor, 2275 Aqueduct Avenue, University Heights, New York,
N. Y.
Charles H. Thurber, Ginn & Co., Boston, Mass.
C. C. VanLiew, State Normal School, Chico, Calif.
James H. VanSickle, Baltimore, Md.
Elmer W. Walker, superintendent of State School for the Deaf, Delavan, Wis.
Sarah J. Walter, Willimantic, Conn.
Samuel Weir, Clarion Normal School, Clarion, Pa.
Guy Montrose Whipple, Cornell University, Ithaca, N. Y.
A. S. Whitney, University of Michigan, Ann Arbor, Mich.
J. J. Wilkinson, Chicago, Ill.
J. M. Wilkinson, State Normal School, Emporia, Kan.
Lightner Witmer, University of Pennsylvania, Philadelphia, Pa.
L. E. Wolfe, San Antonio, Tex.
O. I. Woodley, Menominee, Mich.

卷之三



THE FOURTH YEARBOOK

OF THE
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

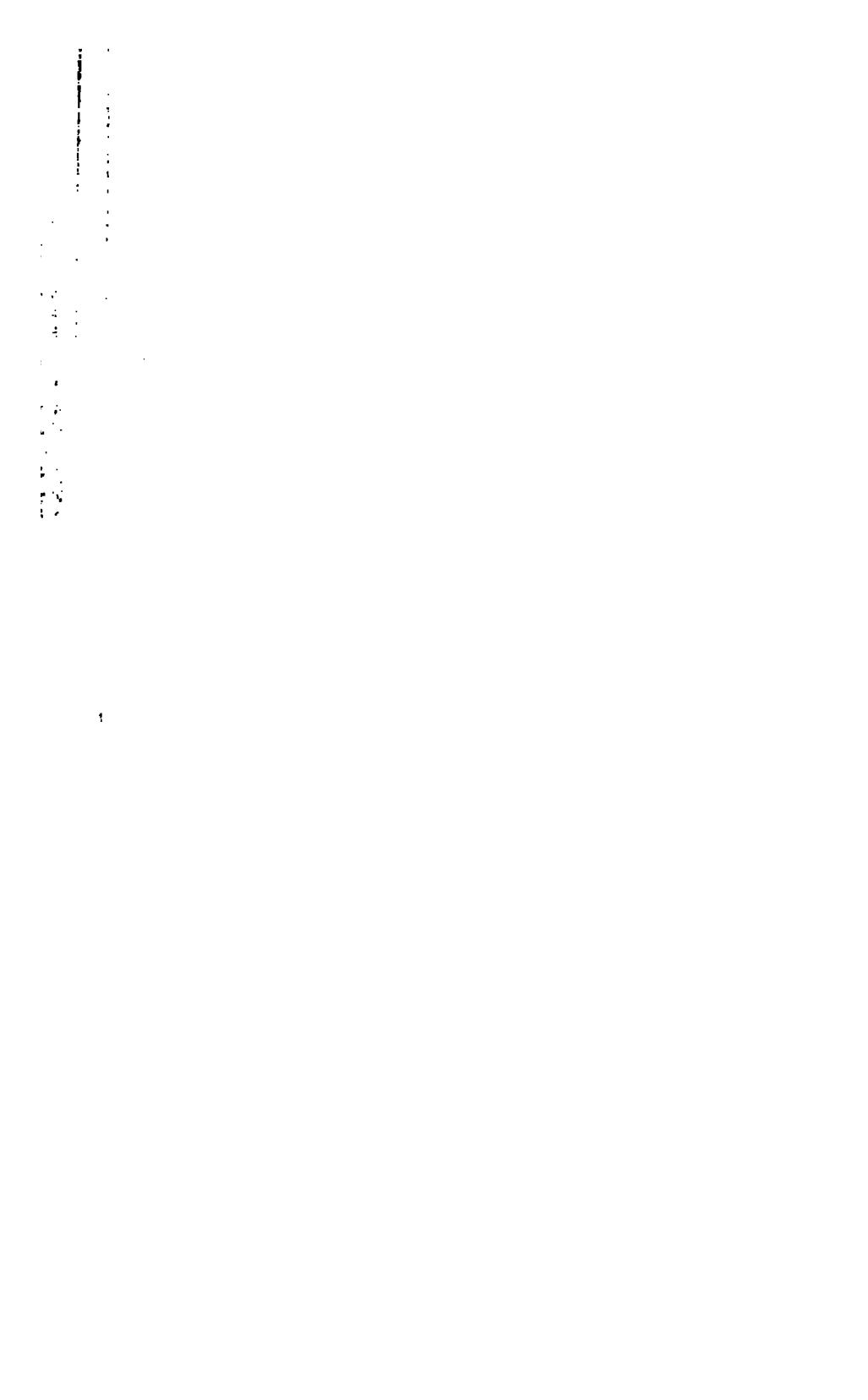
PART I
THE EDUCATION AND TRAINING OF SECONDARY TEACHERS
BY
EDWARD C. ELLIOTT
Columbia University
EDWIN G. DEXTER
University of Illinois
MANFRED J. HOLMES
Illinois State Normal University
AND OTHERS

EDITED BY
MANFRED J. HOLMES
SECRETARY OF THE NATIONAL SOCIETY

MEETINGS FOR THE DISCUSSION OF THIS YEARBOOK WILL BE HELD AT 4:00 P.M.
MONDAY AND WEDNESDAY, FEBRUARY 27, AND MARCH 1, 1905
THE PLANKINGTON HOTEL, MILWAUKEE

CHICAGO
THE UNIVERSITY OF CHICAGO PRESS
1905

COPYRIGHT, 1905, BY
MANFRED J. HOLMES
CHICAGO, ILLINOIS



ANNOUNCEMENTS TO ACTIVE MEMBERS

A great deal of interest is awakened in the question of preparing secondary teachers. It is hoped that we shall get something thoroughly good and helpful from the discussion and conferences at Milwaukee.

One characteristic of our Society should be clear, frank discussion, vigorous and progressive. This is impossible unless the *Yearbook* is studied before the meetings.

Several rules that the experience of the Society has led it to adopt will be applied by the presiding officer whenever necessary or advisable; for instance, none but active members have the privilege of discussion in meetings except through the courtesy of the Society or its officers; preference is given to members who have read the *Yearbook*; it is the right and duty of the presiding officer to hold the discussion to the topic under consideration; he may divide the question and take up the topics in a progressive order; also the presiding officer may in advance or at the meeting invite guests to participate in discussion.

At the Wednesday session a few ten-minute reports setting forth the problems and indicating the progress of work that members are specifically engaged upon will be received. If it should prove advisable, and acceptable to all concerned, these reports may be presented at an extra session for that purpose. This is one of the ways by which intelligence and interest concerning what members are doing may be promoted.

Arrangements have been made to bring together at an informal dinner Wednesday evening as many members as possible. For this purpose a part of the dining-hall at the Plankington Hotel will be set aside at the regular dining hour, but with special service. To those who are registered at the Plankington on the American plan there will be no extra cost; the cost to others will be \$1.00 a plate.

All wishing to join in this should notify President Charles McKenny, Milwaukee, or the Secretary.

The business meeting will take place at the Wednesday session. The items of business so far as known now are:

Report of the Secretary-Treasurer.

Election of officers.

Better organization of the society for work.

Shall the National Society affiliate with the American Association for the Advancement of Science?

Proposal of topics for the next two years. Each member ought to suggest a topic and the person who can deal with it ably.

Election of active members. Active members are requested to hand in their nominations for membership as early as possible. The time has come when new members should be selected with care.

All the sessions will be held in the Arcade of the Plankington Hotel.

It is understood that membership continues until a member notifies the Secretary of withdrawal.

Any change of address or official position should be reported promptly. Otherwise, Yearbooks and communications will fail to reach members.

Now and hereafter membership dues are payable to the Secretary-Treasurer.

M. J. HOLMES,
Secretary.

CONTENTS

INTRODUCTION	- - - - -	9
I. THE GENESIS OF AMERICAN SECONDARY SCHOOLS IN THEIR RELATION TO THE LIFE OF THE PEOPLE— <i>Edward C. Elliott</i>	- - - - -	11
II. WHAT CONSTITUTES THE IDEAL SECONDARY TEACHER?— <i>Reuben Post Halleck, J. Stanley Brown, Stratton D. Brooks, A. F. Nightin- gale, and J. F. Brown</i>	- - - - -	27
III. THE PRESENT STATUS AND PERSONNEL OF THE SECONDARY TEACHING FORCE IN THE UNITED STATES— <i>Edwin G. Dexter</i>	- - - - -	49
IV. THE PRESENT PROVISION FOR THE EDUCATION AND TRAINING OF SEC- ONDARY TEACHERS IN THE UNITED STATES— <i>Manfred J. Holmes</i>	- - - - -	63
V. RELATIVE ADVANTAGES AND LIMITATIONS OF UNIVERSITIES AND NOR- MAL SCHOOLS IN PREPARING SECONDARY TEACHERS— <i>Livingston C. Lord, G. Stanley Hall, Homer H. Seerley, Charles DeGarmo, C. C. Van Liew, Edmund J. James, J. N. Wilkinson, M. V. O'Shea, L. H. Jones, Charles B. Gilbert</i>	- - - - -	83
BIBLIOGRAPHY	- - - - -	104
MINUTES OF MEETINGS AT ST. LOUIS	- - - - -	107
DISCUSSIONS— <i>George M. Forbes, Wilbur S. Jackman, Herman T. Lukens</i>	- - - - -	109
LIST OF ACTIVE MEMBERS	- - - - -	114



— — — — —

INTRODUCTION

Our secondary schools, in accordance with the law of all institutional genesis, have been called into existence by certain needs of the people. The vigorous and rapid growth of these schools during the last few years has awakened a keen and serious sense of their great and increasing meaning in local and national life. But it is already clear that though these schools are loaded with promise of valuable contribution to the national well-being, they can never render their possible maximum of service without the aid of a larger proportion of happily adapted and especially prepared teachers. The importance of this thought has no doubt led the National Society to select the present subject for study.

The two central ideas which are both starting-point and culmination of thought in the study are (1) what constitutes the ideal secondary teacher? and (2) by what selective process and preparation can we best promote the realization of this ideal? But to give proper logical setting and to reveal more clearly the large meaning of the central questions the general subject has been divided as follows:

Division I is a historical sketch which seeks to trace in brief compass the genesis of our secondary schools in their relation to the life of the people. With a renewed sense of the vital importance of our secondary schools the thought then moves on to

Division II, which, recognizing that the most important factor in enabling these schools to yield their maximum of value, presents the opinions of five experienced secondary-school men as to what constitutes the ideal secondary teacher.

Division III. To get some idea of the extent to which the actual secondary teacher of today comes up to the standard called for in the ideal, this division examines the present status and personnel of secondary teachers in the United States.

Division IV examines the present provision for the preparation of secondary teachers made by universities, normal schools, and colleges; it considers the nature of the preparation and the extent to which these schools are meeting the demand for more and better-prepared teachers for our secondary schools; and lastly it presents

a ~~consensus~~ of opinion as to how universities and normal schools can improve in this matter of preparing secondary teachers.

Division V. Finally, the present status of the whole problem and need of more and better-prepared high-school teachers demands that the universities and normal schools come to a sense of their common ground in this work, and consider what each can do best, and seek a way to improve. Therefore Division V sets forth the relative advantages and limitations of universities and normal schools in preparing secondary teachers in so far as a ~~consensus~~ of opinion can do this. This presentation of opinion neither implies nor reveals controversy between normal schools and universities. In some cases it shows the need of better mutual understanding and appreciation concerning their relation to the common problem of furnishing well-prepared teachers for our schools. The central idea is not universities *vs.* normal schools, but universities *and* normal schools in their relation to the education of teachers.

With the study of the general question thus opened up, the plan looks forward to the appointment of one or more representative committees to carry on the study and report what seems necessary and best for the several classes of schools concerned to attempt in the preparation of secondary teachers.

THE FOURTH YEARBOOK

I

THE GENESIS OF AMERICAN SECONDARY SCHOOLS IN THEIR RELATION TO THE LIFE OF THE PEOPLE¹

EDWARD C. ELLIOTT
Columbia University

The development of American education contains the conscious expression of a people ever seeking to realize within themselves the significance of human freedom and of national unity. It discloses the process of the social ideals becoming institutionalized, thereby serving to perpetuate the spirit of a true democracy and to attain to advancing degrees of social efficiency.

Each of the tripartite divisions of our educational system — elementary, secondary, and higher — has had, as it were, a distinct life-history; each has exhibited continuous variation of form, structure, and function in response to advancing social needs; each has served in its own way to contribute to the larger social purpose. The history of our secondary schools affords the best evidence of this evolution of an educational activity in the process of social accommodation. In one form or another they have stood throughout almost three centuries, and have reflected, more truly than elementary or higher schools, the social condition and the progressive stages of our people toward liberty, efficiency, and toleration.

The purpose of this paper is to sketch, so far as can be done within the brief limits assigned, the development of secondary education in our country with particular reference, (1) to the connection between

¹ For much of the material contained in this paper, the author is indebted to that invaluable work of Professor Elmer E. Brown, *The Making of Our Middle Schools*, which places every student of any phase of our secondary education under indebtedness. Professor Paul Monroe, of the Teachers College, Columbia University, has also given many valuable suggestions and has rendered much timely assistance in its preparation.

the schools and the social life of the people, and (2) to the qualifications required of the teachers.

The origin of our secondary schools is to be found in the classical renaissance of the fifteenth and sixteenth centuries. The humanistic educational tendencies resulting therefrom were transplanted by the early American settlers to all of the thirteen colonies, save one, and by them elaborated into a distinct type of schools, though, for a century and a half, with scarcely any modifications on account of the novel conditions. During the latter half of the eighteenth century, coincident with the radical social and political changes of that period, a new type of institution sprang up, very similar to a new type of secondary schools in Europe, but far more responsive to and expressive of American conditions than had been the previous schools. These schools dominated until the Civil-War period, by which time our present secondary schools, which first appeared early in the second quarter of the century, became numerous enough to indicate their superiority. This third type of secondary schools is wholly an American product, and one expressive of the needs and the ideals of our civilization. These same general periods of development are evident in the history of elementary and higher education as well, but they are more clearly marked in that intervening stage, now usually designated as secondary education.

THE GRAMMAR-SCHOOL PERIOD

The typical secondary school, practically the only school of this rank during the colonial period, was the Latin grammar school, more frequently known as the grammar school. These schools were similar to the public schools of England and the early gymnasia of the Teutonic people of the continent. An outgrowth of the renaissance of the fifteenth and sixteenth centuries, these classical schools had been seized upon by both Protestant and Roman Catholic communities as the chief instrument for combating ignorance among their own communions and heresy among those outside. It is but natural that the American settlers, as they transplanted other European institutions, should transplant these. And as such schools had a peculiar religious significance in Europe, it was but natural also that they should be most thoroughly developed in those colonies where the religious motive was a prominent one.

In the consideration of the question at hand, it must be kept in

mind that our conclusions must be based largely upon evidence of an indirect, rather than of a direct, kind. In the absence of settled social conditions, or of a recognized common social ideal, each colony provided grammar schools and teachers thereof in a way best adapted to immediate needs. Choice of a teacher was dependent upon religious or local prejudice. Professional standards of teachers were judged more from results than from academic qualifications. In general, the problem was to secure a teacher — a good one, if possible; a poor one, if need be; but at any rate, a teacher. The ambition of these early colonists was for schools which would guarantee to the children and their children's children the training necessary to the stability of the church and commonwealth. The new ideals of the new world had been too dearly bought to permit them to die out for want of nourishment.

As the earliest and best of its type we may accept the Boston Latin School as throwing some light upon the character of the colonial schoolmaster. What may be said as to it will apply with equal force to the other and numerous schools of like grade established by those enthusiastic Puritans.

The purpose of this school, practically from the time of its establishment, was to prepare boys for entrance to Harvard College. The professed aim of Harvard was to raise up a new generation of ministers. The interests of the Latin school were the interests of the college; the condition of one reflected the condition of the other. This early Massachusetts school system was clearly intended to train the leaders of the ecclesiastical commonwealth.

With its English inheritance of form, function, and ideals the early masters of the Boston Latin School possessed the personal qualifications and that scholastic preparation which had held for generations in the mother-country — the classical education of the English universities. A knowledge of Latin and Greek was the prime requisite, more Latin than Greek, for Latin practically comprehended the curriculum of this grammar school, not only when Ezekiel Cheever was preparing his boys for entrance to Harvard College, but for a century to follow.

When any scholar is able to understand Tully, or such like Classicall Latine Author *Extempore*, and make and speake true Latine in Verse and Prose, *sus ut aiunt Marte*; and decline perfectly the paradigm's of *Nounes*. and Verbes in the Greek tongue; let him then and not before be capable of admission into the Colledge.

Of Elijah Corlett's grammar school in Cambridge it is recorded:

And by the side of the Colledge a faire *grammar Schoole*, for the training up of young Schollars, and fitting them for *Academical Learning*, that still as they are judged ripe, they may be received into the Colledge of this Schoole. Master *Corlet* is the Mr. who has very well approved himselfe for his abilities, dexterity and painfulnessse in teaching and education of the youth under him.²

Later when a new generation of teachers came to take the place of Cheever, Corlett, and their prototypes, we find the graduate of Harvard College—the first product of the new intellectual life—recognized as fit to direct the education of those preparing to follow in the same path as he himself had traveled. The new master of the grammar school was the college graduate who viewed the careers of his pupils through the glasses fitted by his own ecclesiastical preparation.

Mr. Martin in his work on the Massachusetts public-school system has told us, and with full justification, that

The teachers of the earlier schools were men, and men of no ordinary capacity and experience. Some of them had been clergymen. All were scholars, and most of them had been educated at old Cambridge. As soon as the infant college at new Cambridge began to bear fruit, to the honor of the pious Harvard, its graduates found places in the schools as well as in the churches.³

And further,

It would be too much to say that all the early masters were like Cheever, but they were all scholarly after the fashion of the times, and all deeply imbued with that religious spirit which characterized the Puritan epoch. Their whole training tended to this. Their college studies were the studies of the divinity school. There was some mathematics—arithmetic and geometry, some natural science—physics and astronomy. All the rest was along the line of the humanities. Grammar and logic and rhetoric; politics and ethics; Chaldee, Hebrew, and Syriac; biblical and catechetical divinity—all this wealth of learning was at the service of the children.⁴

Those early schoolmasters of New England who have come down to us by reason of their dominating personality scarcely represent the true type. Our best evidence concerning the typical schoolmaster—indirect though it may be—must be drawn from the early statutes

² *New England's First Fruits*; quoted by Brown in *The Making of Our Middle Schools*, p. 40.

³ Martin, *Evolution of the Massachusetts Public School System*, p. 61.

⁴ *Loc cit.*, p. 63.

passed to fix a professional standard. In how far these legal provisions were effective it would be well nigh impossible to indicate. They are presented as evidence, and their value may be determined from their several common elements.

In the famous Massachusetts Statute of 1647, the following appears:

.... and it is forthwith ordered that where any town shall increase to the number of 100 families or householders, they shall set up a grammar school, the master thereof being able to instruct youth so far as they may be fitted for the university,⁴

The resolution of the General Court adopted in 1654 on the occasion of the enforced resignation of President Dunster, of Harvard, owing to his stand taken on infant baptism runs:

For as much as it greatly concerns the welfare of this country that the youth thereof be educated, not only in good literature, but sound doctrine, this Court doth therefore commend it to the serious consideration and special care of the overseers of the College and the selectmen in the towns, not to admit or suffer any such to be continued in the office or place of teaching, educating or instructing of youth or child in the college or schools that have manifested themselves unsound in the faith or scandalous in their lives, and not giving due satisfaction according to the rules of Christ.⁵

Chapter 26 of the laws passed by the first Provincial Assembly of the Massachusetts Bay Colony in 1691 re-enacted that every town of one hundred families should set up a grammar school and procure for it a "discreet person of good conversation, well instructed in the tongues."

The following act of the Massachusetts legislature in 1701 is said to be the first compulsory certification of teachers known in our history.

Every grammar-school master to be approved by the minister of the town, and the ministers of the two next adjacent towns, or any two of them by certificate under their hands. And be it further enacted, that no minister of any town shall be deemed, held or accepted to be the schoolmaster of such town within the intent of the law.⁶

⁴ Clews, *Educational Legislation and Administration of the Colonial Governments*, p. 62.

⁵ *Records of the Governor and Company of the Massachusetts Bay in New England*, Vol. IV, Pt. I, pp. 182, 183. Quoted by Clews, *op. cit.*, p. 21.

⁶ *The Acts and Resolves of the Province of Massachusetts Bay*, Vol. I, p. 470. Quoted by Clews, *op. cit.*, p. 65.

The preceding paragraphs have had to do specifically with the grammar schools of Massachusetts. Not only is our information as to the early schools of this state most reliable and complete, but the example set by her in her educational plan was imitated to a greater or less degree in the other colonies with an educational history. Her story is the composite story of all. The other colonies had grammar schools, fashioned in the same mold as those of Massachusetts. They had grammar-school masters whose works, if not biographies, fill an important place in our early educational history. However, the study of individuals is not broad enough for our present purpose. We must turn to the legislation of the different colonies if we are to gain a glimpse of the broader social endeavors to set a professional qualification for grammar-school teachers.

When the matter of a colony grammar school was being agitated in New Haven in 1660 we find that a schoolmaster was to be provided to teach Latin, Greek, and Hebrew, "so far as shall be necessary to prepare them [the scholars] for the college."⁸

In 1672 the General Court of the colony of Connecticut revised the Code of 1650, with the following provision for secondary education, "That in every county town there shall be set up and kept a grammar school, for the use of the county [the colony had been divided into four counties] the master thereof being able to instruct youths so far as they may be fitted for the college."⁹

In 1690, the General Court of the same colony considering the necessity and great advantage of good literature, do order and appoint that there shall be two free schools kept and maintained in this colony, for the teaching of all such children as shall come there, after they can first read the psalter, to teach such reading, writing, arithmetic, the Latin and Greek tongues; the one at Hartford, and the other at New Haven, the masters whereof shall be chosen by the magistrates and ministers of the said County, and shall be inspected and again displaced by them if they see cause. . . ."¹⁰

And thus, through frequent legislation, can be traced the effort of the colony of Connecticut to provide efficiently equipped secondary teachers and to control the character of this teaching. The evidence in the other colonies, while not so voluminous, is of the same general character. One typical example will serve our purpose here.

⁸ Clews, *op. cit.*, p. 85.

⁹ *Ibid.*, p. 93.

¹⁰ *Conn. Col. Records*, Vol. IV, pp. 30, 31; Clews, *op. cit.*, p. 96.

In 1752, the legislature of Virginia passed an act for incorporating the borough of Norfolk. The clause of this act concerning the qualifications of the schoolmaster is as follows:

and to provide and agree with an able master for the said school, capable to teach the Greek and Latin tongues, which said master, before he be received or admitted to keep school, shall undergo an examination before the masters of the College of William and Mary, and the minister of Elizabeth parish, for the time being, and produce a certificate of his capacity, and also a license from the Governor, or Commander-in-Chief of this dominion, for the time being, agreeable to his majesty's instructions.¹¹

The essential feature of this act, the examination by the minister of the parish, is repeated frequently in the later legislation of the colony.

Summing up, then, we have ample evidence from many sources, indirect though they may be, to justify the conclusion that, in the main, the Latin grammar schools were provided with teachers capable of preparing boys for entrance to the colonial colleges. In many, we might not say the majority, of cases these teachers were educated in the narrowly classical curriculum of the English or Scotch universities, or of the colonial collegiate institutions. Graduation does not appear to have been a prerequisite. "Knowledge of the tongues" seems to have been capable of the widest variety of interpretation. In all of the colonies ecclesiastical control and examination were exercised over the license to teach—in New England, by the local ministers; in the other colonies, nominally by the Bishop of London.

The schoolmasters of the colonial period may be roughly divided into three classes. There were a few men of scholarly preparation who made teaching the work of their lives, and kept up the best traditions of the free-school masters of Old England—of Mulcaster and Brinsley and Charles Hoole. Then there were young clergymen and ministers of non-Episcopalian denominations recently from college, who taught school while waiting for a call to the pastoral office. Finally there was a miscellaneous lot of adventurers, indentured servants, educated rogues, and the like, all either mentally or morally incompetent, or both, who taught school only to keep from starving.¹²

In spite of honest efforts to maintain the old professional standards, through legislation and ecclesiastical supervision, we find

¹¹ *Official Records of Robert Dinwiddie*, Vol. VI, p. 265; Clews, *op. cit.*, p. 345.

¹² Brown, *The Making of Our Middle Schools*, p. 110.

even before the Revolution, a decline in the character of the Latin school. Local interest declined and local support diminished. The time seemed ripe for a new force to make itself felt in American education.

It may seem that too much attention has here been given to these colonial grammar schools. Nevertheless, a comparatively full treatment has been deemed necessary in order to obtain a fuller appreciation of the standards of the early period, standards which prevailed in reality, if not in name, for almost a century following the Revolution; and further, because legislative evidence concerning the qualification and preparation of teachers during the following period is very much less abundant, practically absent, for the states did little to foster the new type of schools.

THE ACADEMY PERIOD

From the Revolution to the Civil War our educational activity, in common with our political and social life in general, was characterized by decentralization in organization, an individualism in motive and in action, and a democratization of public opinion. When the democratic sentiment became fully conscious of itself during the Jacksonian period, there developed a realization that its needs might be more readily accomplished by a greater centralization of power and some restriction upon that individualism that allowed certain classes or individuals to obtain control of social opportunities. Hence from this period of about 1840 there is a marked tendency toward greater centralization in government, a more complete legal control of private activity, and an effort to prevent the control of opportunity through unrestricted private initiative which in educational activities is only fully revealed after the Civil War.

The characteristic features of this middle period in our educational history are quite clearly indicated in the condition of the elementary schools. Here the district school was typical and illustrated all of these general features more obviously than any other phase of educational life. Superseding the old town or township schools, supported and controlled by a comparatively large local unit, and acquiring conformity to some general standards of recognized integrity, the district school represented the extreme of decentralization, in that it gave the control of the school into the hands of the smallest possible local unit; the extreme of individualism, in that each locality con-

trolled, without any general supervision, the character and content of the work of its own school, and in that each pupil even determined his own choice of subjects, or the method of study of the subjects by the books he might be able to bring to the school; and the extreme of democracy, in that little emphasis was placed upon any but the most rudimentary subjects, and the entire tendency was thus to reduce all to a common level and that a low one.

In a similar way, the secondary school of the period expressed very clearly this response of education to changed social conditions. The old Latin grammar schools with their public support and central control, rigid and restricted curriculum, and class or professional patronage, were replaced very rapidly and generally by the academy. In a very complete way the academies were an expression of decentralized control. For the most part they were purely private, or at best quasi-public, institutions: that is they were corporations of persons either in their private capacity or as representatives of certain interests, either denominational or local. Save in a few states, and those near the middle of the century, the state obtained no supervisory control over them. In these few cases, as in Maryland and New York, there was an attempt to build up state systems, through state supplementary subsidies, that carried with it the right to inspect or to examine pupils, and to make certain specifications concerning tuition rates. In other cases the state limited its assistance to the provision of a building on condition that the locality would supply the teaching staff and support the school. The great majority of such schools, however, were purely private institutions, and the function of the state, even when it did interfere, was for the most part limited to the giving of assistance.

Thus the academy was an expression of individualism and of the new democracy; it was an expression of local effort; it responded to local needs, its activities and its object were determined by local ideas. Hence there was the greatest variety of conditions, with regard to support, with regard to subjects taught, with regard to standards of attainment, and with regard to extent of influence. Since the academy offered to teach almost any subject desired by a pupil—in this respect making a great divergence from the preceding type of secondary schools—and the established curricula prevented the widest variation in different localities, it gave fullest expression to individualism. Since the academy was very generally

supported by a tuition fee of substantial amount, it was supposed to be an expression of democracy in that it allowed each individual to determine his own educational opportunities and attainments. But it was soon made evident that while the academy prepared for a very much wider scope of social activity on the part of its graduates than did the old grammar school, and hence was not so much of an institution for the one or at most two learned professions, it was, on the other hand, quite as distinctly a class institution; for it tended, as did the private schools supplementary to the inefficient district schools and as did the provisions for pauper children in district schools, to draw sharp class lines and to restrict the better educational opportunities to the favored few.

The fact that the academies were the outgrowth of changed social conditions and were thoroughly expressive of the life and the ideas of the people of the time is indicated most clearly by the development in the curriculum.

Before the Revolution this new type of secondary school began to appear in response to new demands which the old Latin grammar schools did not, and could not, meet. The new social conditions brought about by the expanding commercial, industrial, and political conditions of the latter half of the eighteenth century made necessary a training for which the curriculum of the old grammar school was but ill suited. The chief business of the old grammar school had continued to be the preparation of boys for college; the chief business of the college was still preparation of men for the ministry, with shadowy beginnings of the later professions of law and medicine. But the curriculum of the college remained as it had been crystallized in its ecclesiastical medium of a century preceding. Down to 1800 the leading American colleges demanded of their entering freshmen, Latin, Greek, and a little arithmetic. In Harvard, geography was not added until 1807; English grammar, 1819; algebra, 1820; geometry, 1844; and ancient history, 1847.

A time was coming when people were to demand something beyond the classical crust for the education of their children; when boys were to be educated apart from collegiate predestination; when girls as well as boys were to share in the advantages of a broad education. Hence it is not surprising to find private institutions, later subsidized and chartered by the state, appearing, which emphasized the practical aspect of education by giving instruction in arith-

metic, accounting, writing, English grammar, literature, science, surveying, navigation, etc., in addition to Latin and Greek required for admission to college. Apart from the desire for better educational facilities the spread of the academy movement was an expression of a people to be freed, in the conduct of their educational institutions, from the narrow ecclesiastical and class control which had been growing up previous to the Revolution. A broader curriculum, secondary instruction for both boys and girls, apart from preparation for college, and secular private control then seem to be the characteristics emphasized by the academy education. Each of these elements may be said to have affected the qualification and preparation of the teachers in this class of institutions. It is, however, exceedingly difficult to generalize in this respect. Far more than the Latin grammar school did the academy type of secondary school vary from a fixed standard. There were academies of high grade and of low grade; those endowed with high public purpose and those dominated by a low commercial motive. Owing to their system of private control, the professional standards of the teachers were to be graded by the standards of the school.

If any generalization is to be permitted it may be said that in the best academies, the teachers secured their preparation, as did those of the best of the old Latin schools, in the colleges of the day. Even where the curriculum of the academy was broader than that of the college, there were men of unusual genius exhibiting that comprehensive intellectual grasp which enabled them to infuse light and enthusiasm into the new instruction. We find the following purposes expressed in the constitution of the first chartered academy in New England—Phillips Andover:

to lay the foundations of a public free SCHOOL or ACADEMY for the purpose of instructing youth, not only in English and Latin Grammar, Writing, Arithmetic, and those sciences wherein they are commonly taught; but more especially to learn them the GREAT END AND REAL BUSINESS OF LIVING. . . . It is again declared that the *first* and *principal* object of this institution is the promotion of true PIETY and VIRTUE; the *second*, instruction in the English, Latin and Greek Languages, together with Writing, Arithmetic, Music, and the Art of Speaking; the *third*, practical geometry, Logic and Geography; and the *fourth*, such matters of the liberal Arts and Sciences or Languages as opportunity and ability may hereafter admit, and as the TRUSTEES shall direct;¹²

¹² Brown, *op. cit.*, p. 195.

and who will gainsay that such an institution, with such a purpose, did not demand and secure teachers of the most liberal training of their time. We might almost say, judging from the work and character of this particular school, that the teachers were far above their training.

On the other hand, we can hardly gauge the professional standard of the academy teacher by such rare types as Adams and Taylor of Phillips Andover, or Dwight of Greenfield Hill. In very many of the academies of the lesser sort the teachers were educated but little above the limited requirements of their tasks. The most that can be said of these institutions is that there were no general requirements whatever; that each institution exercised its own choice in determining the qualifications possessed by the teacher; that these qualifications were more largely of a peculiarly personal nature and related more to strength and attractiveness of personality than in either the preceding or succeeding periods, since the influence of the teacher and of the school was exerted more largely through the personal character of the teacher than through his knowledge or through the nature of the subject taught.

One or two other facts of vital importance should be mentioned here. The attendance of pupils upon the old Latin grammar schools was always very small. These schools were one-teacher schools. Just before the Revolution the pressure for a more practical kind of instruction had led to the employment in many of them of an assistant to teach a meager quantity of writing, arithmetic, accounting. The core of the instruction was, however, the classics taught by the master. With the coming of the academies with their highly differentiated curricula we have the *beginnings* of the need of teachers capable of devoting themselves to specialized groups of subjects.

Two other relationships of a general character between the academies and the teaching profession are to be noted: first, in relation to the elementary schools, that a very important function of the academy was to give a broader preparation to the elementary-school teacher and to raise the standards of the teaching profession in this grade very materially; second, through the broader curriculum of the academy, the curriculum of the college was reacted upon and a much more liberal policy than had hitherto prevailed was here initiated. This response, to a considerable extent, was for the purpose of pro-

viding an appropriate preparation for secondary teachers, but it never reached any conscious formulation in definite requirements.

Further, the academy movement marks the beginning of secondary education for women, and the appearance of women in the field of secondary teaching. The academy may be said to have contained the germ from which two types of American schools have developed—the normal school and the women's college, both of which have been of no mean influence in the projection of higher standards for secondary teachers.

THE HIGH-SCHOOL PERIOD

During the second quarter of the century a new type of secondary schools appeared, which was to become a vigorous rival of the academy before the opening of the Civil War, which was to surpass the academy in importance by the close of the third quarter of the century, and which has now become, save in certain limited regions of the East and South, where traditions are strong and certain social conditions prevail that do not obtain in other portions of the country, practically our only secondary school. The transition from the academy was made in some regions by the higher schools conducted on the monitorial or Lancasterian system which, while they continued to charge a tuition, were supported by a public society and offered education at a merely nominal expense; in other regions by the free academies, which, as the name indicates, were but the old academies supported by sufficient endowment or local subsidy to abstain from all tuition requirements; and in a few of the larger cities, by the city colleges, or free grammar schools, which performed approximately the same function for the larger number of city youth.

The high school differs radically from the academy in two important respects: first, it is supported and controlled by the government, primarily by the municipal, though often assisted by the state, and hence is under a more centralized control and is far more amenable to public control; second, it charges no tuition, but offers a course of study, at first not as broad as that of the academy, but tending to become so, absolutely free to all classes in the community, and hence is absolutely democratic.

The high school is but the culmination of the free public-school system and is the outgrowth of the same economic and political conditions and the same social ideas. Though the high-school develop-

ment came somewhat later than the free-school movement, it is to be remembered in this connection that the schools were not generally made free until near the middle of the century, and that tuition rates were not abandoned in New York state until 1867. In this respect especially the high school is a fuller expression of democracy than was the academy; and while in some features it seems to be less an expression of the individualism of the people, in that it is under state supervision, in reality it is a much more complete expression of that individuality, for though always an expression of local opinion through corporate capacity, by that very fact it is more fully expressive and more readily responsive than could be an institution controlled by private persons or by trustees representing private, sectarian, or class interests. In this respect it deserves the term so frequently applied, "the college of the people."

Through its curriculum, now much broader than at first, it becomes expressive of the developing or changing interests of the people, especially those of an economic and commercial character. Through the plan of election of studies, it provides for the individuality of the pupil, and the personal interests of its patrons, even more fully than could the academy. Through the improved methods of study and of teaching, it keeps abreast of the developing scientific and technical knowledge, and of the art of teaching. It is only in regard to the one topic that the future papers of this series deal with, that of the standards of qualification of its teachers, that little advance has been made, until quite recently, and concerning which few generalizations can be made.

The English High School of Boston is regarded as the pioneer of the high-school movement in this country.¹⁴ In the general plan of its organization as adopted January 15, 1821, we find the following clause: "Eighthly, That it is required of all the Masters and Ushers as a necessary qualification that they shall have been regularly educated at some University."¹⁵

This provision in the regulations of our first public high school seems to embody the essential qualifications demanded of secondary-school teachers during the remainder of the century. While it cannot be gainsaid that many of our high schools of the present generation have not lived up to this standard, it must be admitted that this has been the ideal attempted by the secondary schools worthy of the

¹⁴ Brown, *op. cit.*, p. 297.

¹⁵ *Ibid.*, p. 300.

name. With the growth of state systems of education, especially since the Civil War, we have witnessed the extension of state control over the licensing of the teacher. The building up in each state of an elaborate plan of normal schools has been effective in maintaining and raising the professional standard of elementary-school teachers. In but few states, however, has the system of licensing secondary-school teachers gone beyond the requirements of the elementary school. Custom and nominal local requirements have not extended to the fixing of any higher professional standard for secondary-school teachers than that indicated by college graduation. This of itself implies a vastly broader training today than fifty years ago. Then again, the founding of our higher state institutions, especially in the central West, with departments of pedagogy has given an impetus to a special professional preparation of secondary-school teachers. The very heterogeneous condition of the present, with which the subsequent papers deal, and which makes it impossible to draw any general conclusion of any wide validity, is due to the two general lines through which the high schools have developed. In many states the high school developed simply as a part of the common-school system, without any special legislative authorization, but justifying itself against local sentiment, which in many cases looked upon all higher education as undemocratic and as a betrayal of the interests of the people, by judicial decision. In such cases when the high school only received recognition tardily, if at all, there could be, as a matter of course, no special qualifications for high-school teachers other than those required of common-school teachers. As a result then in such states qualifications are determined largely by the local boards, which may or may not demand an examination in subjects other than those taught in the elementary schools. This allows far greater discretion upon the part of local boards than is true in general of elementary teachers, and while one may say the general requirements are those of college graduation, it is too evident that such standards are in many instances purely nominal, though, on the other hand, in many large cities, the same local freedom permits the enforcement of yet higher standards.

In other states, high schools have developed as specific institutions of a secondary grade, fostered by grants from the commonwealth government. Such states may require in return only a test of work accomplished by the student; but most generally have required that

the teachers of such schools shall conform to requirements established by the state superintendent or board of public instruction. In such states the requirement of qualifications equivalent to college graduation can and are usually required in actuality.

Some few of the western states, wherein this control over the secondary teacher has been made as complete as that over the elementary teacher, have taken an important step in advance, even of this; and believing that even the credentials of a college must bear examination, require that the secondary teacher in all state schools shall conform to requirements established by the state universities through their departments of pedagogy.

This has introduced another qualification, as important as it is novel; namely, that the teacher should evidence some knowledge of the science of teaching and give some evidence of skill in the art of teaching. But in the vast majority of states, even in those that have definite standards of qualification for secondary teachers, knowledge of the subject, which is the primary requirement, is also the sole requirement.

No problem of the many presented by secondary education is of greater importance than this of determining the nature of some general qualifications of the teacher and the definite establishment of these by law.

II

WHAT CONSTITUTES THE IDEAL SECONDARY TEACHER?

REUBEN POST HALLECK, Principal Boys' High School, Louisville, Ky.

J. STANLEY BROWN, Superintendent Township High School, Joliet, Ill.

STRATTON D. BROOKS, Supervisor of Schools, Boston, Mass. (Formerly Inspector of High Schools in Illinois.)

A. F. NIGHTINGALE, County Superintendent of Cook County, Chicago, Ill. (Formerly Superintendent of High Schools, Chicago.)

J. F. BROWN, Inspector of High Schools, State University of Iowa, Iowa City, Iowa.

Questions and theses arising from this division of the study:

1. Is it important that the number of high-school teachers should be about equally proportioned between the sexes? If so how can this be done?

2. There is serious need of a more effective selective process by which a larger proportion of teachers of choice personality and adequate scholarship will be secured for public high schools.

3. With the best that schools can do, the larger and more vital preparation of the teacher comes after experience begins: therefore, for practical reasons alone, it is the duty of superintendents and school boards to insure opportunity for progressive improvement on the part of their teachers.

4. It seems to be the unanimous opinion that a high-school teacher should be primarily devoted to the welfare of his pupils rather than to the claims of a subject. How can this attitude and interest be insured in case of an intense specialist in one of the academic branches?

REUBEN POST HALLECK
Principal Boys' High School, Louisville, Ky.

The personality of the secondary teacher.—I am here leaving to others the scholarship requirements of the secondary teacher. For years it has been my habit to study the personality of secondary teachers and to recommend them largely in terms of their personality.

Sympathy.—First, it is unusually necessary for secondary teachers to have a sympathetic personality. Adolescence craves sympathy more than any preceding age. The teacher must feel with the pupil, must comprehend the pupil by an intuitive lightning flash of sympathy, which ought to light up every dark schoolroom. With

intelligent sympathy a teacher can do anything in reason with adolescents. Without sympathy he may develop such a spirit of contrariness in them that they will walk to the block and lay down their intellectual heads before they will study for him. Witness the number of those who leave school because they begin the downward path by failure in some one subject in which no sympathetic effort is made to reach them.

Imagination.—In the second place, an ideal secondary teacher must have a broad and vivid imagination. It ought to be understood by every teacher as a psychological truism that sympathy cannot be wide or deep or penetrative without imagination. Since the experience of two people cannot be exactly the same, they can cross the stream which separates them only by the bridge which imagination furnishes. The teacher is striking in the dark if he cannot frequently look at the world through the eyes of the adolescent. The adolescent is of imagination all compact. Things prosaic to us suggest to him an unexplored new world of enchantment. In the Elizabethan age the imagination was considered more necessary than the reason to interpret the facts of life. A later time was to usher in the cold juiceless age of reason and then there was decadence. The ideal teacher of adolescents must be an Elizabethan. His world must be at least occasionally illumined with the light that never was on land or sea.

Humor.—In the third place, an ideal secondary teacher must have a sense of humor. This will deter him from over-stressing certain things and from over-emphasis in general. A sense of humor will keep a teacher from becoming shrill. A teacher should develop the Shakespearean capacity for being easily bored. Adolescents have this capacity in a remarkable degree. Their teacher should not let them outclass him in this respect. Experiments have proved that excessive repetition of the same presentation tends to develop a comatose or a hypnotic condition.

Moral character.—In the fourth place, the teacher should have character. By this I mean simply the disposition to do his duty one hundred times out of one hundred without exception. I am content to take a teacher of this type, even if he is imperfectly developed along some intellectual line. I know that the character will force sufficient intellectual development. I am never sure that mere intellect will develop character.

Youthfulness.—In the fifth place, youth is a fine quality for the teacher of adolescents. The majority of such teachers probably begin to decline from their zenith after thirty-five. The world of the adolescent tends to grow remote and the sympathies to be narrowed after that age. I have for some time noticed that parents who wish certain teachers to make an appeal to their sons frequently select one of the younger body of instructors who has had some athletic experiences in common with the boy. In everything except administration, it is probable that in the majority of cases a teacher at thirty-five is a better adolescent teacher than the same teacher at forty-five. Shakespeare remained an adolescent until death, but the majority are not in his class. Enthusiasm and tireless energy are qualities absolutely necessary for the teacher of adolescents, and these are precisely the qualities most likely to diminish with age.

J. STANLEY BROWN
Superintendent Township High School, Joliet, Ill.

Personal quality and social efficiency.—The ideal teacher must possess a great soul. The mundane setting of every great soul is physical, and so it comes that the fundamental quality of a teacher's personality must be physical. Good birth, careful training in childhood and youth, good health, good habits, a well-balanced mind, an optimistic nature, well-regulated appetites are some of the possessions of a teacher with the most effective personality. It is not essential that the ideal teacher should exemplify either extreme in avoirdupois, but it is accepted without argument that personal magnetism, culture and attractiveness of character are observed, admired and understood without verbal expression. Simple, unaffected neatness in the appearance and dress of the teacher can, in my judgment, be relied upon to produce the most lasting effect on both fellow-teachers and students.

This teacher must have an intense sympathy with adolescents, and a permanent and emphatic interest in them. No one can teach a high-school boy to the best advantage, who does not have an abiding consciousness of that boy, his needs, his traits, his environments and all other things touching his life. The way of approach to the teacher ought to be made easy by him in leading the youth, step by step, to see that his highest interests are subserved. The door to such an

approach ought always to be ajar, and the way should grow more and more familiar by use. By this means can the indispensable personal relations between the ideal teacher and the student be preserved.

The ideal teacher must be democratic in spirit and dignified in bearing, in order that his life, his teaching, and his magisterial product may promote the highest welfare of the government of which he forms a part. Upon this teacher, in largest measure, rests the responsibility of keeping forever the spirit of democracy, because from almost all other institutions democracy has come and gone, or has come and is going. If governments by the people are to be preserved, schools for the whole people must be encouraged, enlarged, dignified, and kept democratic. In preserving all these things so dear, the personality of the teacher is the paramount factor.

The ideal teacher must take an active interest in all civic and ecclesiastical questions tending to mold or crystallize community sentiment. The influence of the teacher ought to overshadow the community in which he lives, and ought to be a guiding power in directing scholastic and municipal life. Whatever makes for civic, ecclesiastical or municipal improvement may properly demand a share of the teacher's attention.

Scholarship.—The second quality of the ideal teacher concerns scholarship. It will be accepted without argument that no one whose scholarship is limited to graduation from the kind of school in which he teaches can do justice either to himself or his classes. The scholastic attainment of our ideal teacher must then represent more preparation than can be secured in the secondary school. After the high-school course has been completed he ought to go for two years to the best state normal school or school of education available, and follow this immediately by sufficient work to secure the bachelor's degree at one of the best colleges. If the work ahead of him as a teacher demands greater specialization than he has been able to get up to this time, he may spend two or three summers in the university and take his master's degree in the line of work in which he has found his greatest strength and interest.

Now comes the critical period, demanding that his knowledge be matured, rectified, and proved by the real work of teaching. The thought-plane of the teacher ought always to be the same as that of the student. With the ideally prepared teacher this will always be found. When preparation for this kind of teaching has gone beyond

that mentioned, the thought-plane is elevated, so that the boy is not recognized but only the man. Work in original research, and that leading to the Ph.D. degree are very likely to make the teacher become absorbed more in his work than in the student to whom this work may be presented.

Whenever any teacher's scholarship reaches such a point that he is more interested in his field of work than he is in high-school boys and girls, he ought no longer to teach boys and girls, but men and women; and hence his sphere of labor should be transferred to the college or university. This is the line of demarkation between teaching boys and teaching a subject. In this may also be seen the difference between the vital, inspirational, sympathetic teacher in some secondary schools, and the dead, uninteresting, heartless teacher acting simply as a condenser and distributer of knowledge for some college or university.

I do not mean that the thought-plane ought not to be subject to daily change, but when the condition would be improved "the fodder ought to be placed lower in the trough."

Special professional preparation.—The period of adolescence covers practically the period of secondary education. The adolescent is unlike either the child or the man; and hence the ideal teacher, having to deal with an individual differing from others, must have a different kind of professional knowledge and training. Public toleration of poor teaching is less for the secondary than for any other school, because the public mind does not grasp the greater difficulties presented in this school. The service is difficult; let the teacher have all the knowledge obtainable from schools of education and normal schools, because the erratic boy or girl may prove the exception to all previous cases studied and all deductions made.

G. Stanley Hall's *Adolescence* ought to be the bible of all looking forward to secondary teaching, and to most who are teaching in secondary schools. This treatment of the adolescent may yet show us the Moses and the Promised Land.

It is absolutely essential to the ideal that this teacher be a close student of adolescence. The primary teacher may attain great success in her field of work without the knowledge coming from this kind of professional study, and so also the college and university teacher whose interest is expected to be limited largely to subject-matter. He regards his work entirely finished when he has presented

the truths of the subject in proper order and very generally cares little whether his students obtain great things from him. He defends his position by saying that he is teaching men and women who know why they come, and it is not his business if they fail in grasping all he presents; but the man who teaches adolescents must know boys and girls from thirteen to eighteen years of age.

In addition to reading the best thoughts of the great teachers, the ideal teacher must be a daily student of youth. By this means years of experience and struggles with large and ever-changing bodies of students will lead him to know almost intuitively what is best to do with and for each student.

Progressive improvement.—It is peculiarly true of the secondary teacher that no amount of professional reading and study can ever take the place of extended experience involving close contact with secondary school students. The walls of partition have to be broken down and access to the teacher, not only made possible, but invited and urged.

A senior in a great normal school or college of education can tell you precisely what to do with a boy under any and all conditions; but real contact with a boy in a real school soon shows such a senior that a boy has much to do with what is accomplished in him, and so the ideal teacher can neither depend on theory nor on practice, but upon a judicious and harmonious molding of both.

Accordingly no ideal teacher can remain so who does not spend at least every fifth year, or one-fifth of each year in mastering the best and newest theories presented by the best colleges of education and normal schools.

STRATTON D. BROOKS
Supervisor of Schools, Boston, Mass.

The ideal secondary-school teacher should possess at least the characteristics included in the following groups:

Personality.—Tact, interest, and sympathy was the trilogy with which Professor Münsterberg put to rout the advocates of psychological training as the fundamental element of success in teaching. These three characteristics are, and ever will be, the fundamental ones of every successful teacher. They are the qualities which enable mediocre intellect to render acceptable service. It is because of them that teachers of limited training rise to conspicuous heights. Every

school, however poor the preparation it offers, however inefficient the training which it gives, yet sends forth some men or women whose personal qualities make them real teachers. It is their success that the school offers as evidence of its own superiority, or as conclusive proof that extended professional training is unnecessary; though, in truth, the success of the poorly trained is most often due to the presence, and the failure of the well-trained, to the absence of the three essential characteristics, tact, interest, and sympathy.

In addition to tact, interest, and sympathy there are other elements making up the personality, many of which have such a bearing upon success that we wish our ideal teacher to possess them. A pleasing personal appearance, a keen eye, a well-modulated voice, and good health are much to be desired. Honesty, truthfulness, fair-mindedness, absolute uprightness of character so ingrained as to make itself manifest in manner of living rather than in words—these must be demanded of all who aspire to any leadership of boys and girls, or who hope to be concerned with any education really worth while.

An understanding of youth.—The ideal teacher must know his pupils, and know them so thoroughly that he can deal with them with tact, interest, and sympathy. I do not mean that knowledge which many fluent speakers on child-study possess, that knowledge which says that a child at ten has such and such characteristics, while a child of fourteen is so and so. I mean rather that knowledge of boys and girls which, taking all the aid it can from the generalizations of pedagogy and every other “ology,” deals directly with each boy and girl, or with the assembled boys and girls, with such accurate interpretation of their thoughts and feelings that every appeal, whether to emotion or to reason, is adapted to the case in hand.

By thus emphasizing individualization of appreciation of the mental attitudes of children I do not mean to reject the generalizations of child-study. In fact the general similarity of children of the same age is so markedly different from that of children of another age, that teachers who have for years devoted themselves to the appreciation of the mental attitudes of children of one age find great difficulty in adjusting themselves to the different conditions presented if they are asked to teach children much older or much younger. Thus the high-school teacher has a habit of interpretation of mental attitudes which will fail him in the grades, while the teacher of long experience in the

grades will in a similar way misinterpret the high-school pupils. This ability to appreciate the mental attitudes of children of high-school age is the *sine qua non* of the ideal teacher of secondary-school children, and must cover both the emotional and the intellectual sides of child life. A superintendent may visit room after room. What he says and does may please and instruct. He may bring with him an air of good-will and jollity to which the school will respond and on account of which every child will like him. Yet all this may not affect in a lasting way a single child. With the teacher it is different. He cannot come and go. It is his to share all the varying moods of all his different children. Through their love and interest and pleasure and ambition he moves them toward sound characters, but none the less through their hate and anger and displeasure and doubt must he accomplish the same end. In intellectual matters must he also be quick of perception, and appreciation. He will allow the students time enough but not too much, the currents of thought must not acquire the weedy stagnation of the inclosed pond, nor yet the futile shallowness of the bubbling brook. He must recognize the full flow of the mental current and change from topic to topic or lesson to lesson at such a time and in such a way as to carry over from one to the other the greatest amount of force and strength. He must perceive the flow and the ebb of attention and power and set the hardest tasks when they have greatest chance of successful accomplishment. He must read with ease the subtle signs which indicate the approach of fatigue. He must be aware that the vigor of attack depends upon the kind of fatigue which precedes and cunningly devise the presentation of each subject so that it gains most or loses least from its relation to the preceding.

The characteristics which have been included in the three preceding groups are essential and fundamental but they are by no means the sole characteristics of an ideal teacher. They have been placed first because more largely than those which follow they are the result of birth rather than training. Alone they are of small value, but through them and because of them the teacher may most effectively use the additional educational weapons with which he may be equipped. The professional school may do much to bring out and to strengthen them, but even their complete development in the school of experience is not uncommon, a condition which seldom exists with reference to the remaining groups.

Scholarship.—The ideal teacher must know his subject accurately and thoroughly lest he be justly compared with the teacher to whom a master of the Latin school said, "You are an excellent teacher of things that are not so." The appeal for ample scholarship has been so often made that its repetition is unnecessary. I wish rather to point out that in itself alone it may be a hindrance rather than a help. It is only when high scholarship is possessed by a man who knows children that it reaches its highest. The teacher fresh from college knows his subject, but he does not yet know how much of his subject is adapted to high-school pupils. Of such a teacher it has been said with some show of truth that his "efficiency decreases in proportion to the square of the distance he has gone into his subject." The most brilliant scholars have greatest difficulty in their first years of teaching in coming down to a high-school class, and for this reason experienced principals prefer those of lower rank in scholarship.

In his knowledge of the subject the teacher should include, therefore, both the final goal toward which he is leading the pupils and the present position of the pupils on the journey. The highly educated teacher may know only the former; the teacher of limited education may know only the latter. The arithmetic teacher who knows only that the class are "going to page 126" as set down in the course of study, and the teacher whose vision ranges so far ahead into algebra and higher mathematics that he does not know that his efforts to "open vistas" of distant mathematical fields are hindrances to real progress, are both alike far from the ideal. It is clear, however, that the possibility of the ideal exists only with the one possessing the more extended education.

The spirit of research.—The ideal teacher must possess the spirit of research. No man can set boundaries to mark the amount of knowledge desirable in any subject. So long as the teacher remembers the capacity of his pupils there are no limits beyond which he should not go. The ideal condition is not determined so much by the distance that a man has gone into his subject as by his attitude toward it. The desirable, or better, the essential attitude is that of research, that determination to know the truth within a certain field and, if possible, to extend the boundaries of that field. The teacher fresh from college may know his subject but if he lacks the spirit of investigation he will not keep in touch with the changing character of that subject and will degenerate into a mere time-server. In ten

years the teaching of Latin has been greatly improved, but there are many teachers, once excellent, who are unaware of the changes which have taken place. Only those teachers who are filled with the spirit of research can keep themselves among the foremost of their time.

Selective judgment depending upon special professional studies.—The attitude of research demands that the teacher be able to judge and to choose. Not everything that appears in regard to any subject is the truth, and not all of the things which are true are usable in our teaching. The teacher must sort the true from the false and decide how the truth will modify his teaching. This judgment demands a critical attitude which can come only from thorough training. A philosophical training of such breadth and depth as to enable the man to judge sanely and soundly is essential. Since this judgment is concerned with determining the educational value and educational results of material presented in his special field it is well that this philosophical training include the sciences most closely related to education such as psychology, ethics, and sociology. Furthermore no judgment of the value of educational material, will be of value if it be not made by one who has some standard of educational worth which is in accord with the general educational situation of the times. A training in educational theory and principles thus becomes part and parcel of the ideal teacher's professional equipment.

The critical attitude applies not only to material but to method. The ideal teacher is not so much in need of a method of teaching as he is of a knowledge of different methods sufficiently wide to enable him to judge safely as to the desirability of adopting any new method or device which may be proposed. The teacher who comes out of school or college equipped with a method which works is less liable to become the ideal teacher than the one who has been made conversant with the major purposes and some of the minor devices of many methods to the end that he may have a discriminating attitude toward methods and be able to select those which lead to the ends which his own educational philosophy has established as the purpose of education.

Such an appreciation of educational aims and educational methods can come only in connection with some study of the history of education. A knowledge of what the world has done will not only aid in the comprehension of what it is attempting to do, but it will also prevent the expenditure of effort along lines that have proved

unavailing. The scholar possessed with the spirit of research toward both material and method will of necessity be an experimenter. It is essential that he know what has been tried both that he may judge of the value of methods proposed by others and that he may avoid directing his own experiments into channels which have long since been shown to lead to undesirable results. Our ideal teacher must therefore in his practice make extended use of his knowledge of the history of education.

Progressive improvement.—The ideal teacher must be able to read with discrimination and judgment. The professional school may give some foundation for the attainment of the ideals set forth, but it can do little more. The teacher must maintain himself, and the hundreds of teachers whose worth has not improved in the last decade are witnesses to the fact that this is far from easy. In order to maintain himself he must read. It is by reading that he shall keep before him the fundamental elements of his training and render them effective in his work; but, on the other hand, it is the character of his fundamental training which determines whether his reading shall help or hinder. Only the scholar can read the periodical literature of his special subject and sort the true from the false. Only the well-trained man can read the educational journals with his mind open to conviction and yet avoid following strange gods. Only the man with extended professional training can determine the validity of the psychological, ethical, or sociological presuppositions which underlie some new method which on the face of it seems desirable. It is perhaps fortunate that the under-trained teacher is little prone to investigation and progress, or we should have greater damage than we do now from ingenious and plausible presentations of educational foibles which a sound theory of education must reject.

Summary.—Such is my conception of the characteristics of an ideal secondary-school teacher, and it is evident that professional training will do much toward attaining to that ideal. Tact, interest, and sympathy it cannot give, but it can furnish such soil and surroundings that the seed already sown may come to an abundant fruitage. To him who has tact, interest, and sympathy it may reveal the child. It may promote scholarship or accept it from the non-professional college; but in either case it may give to the spirit of critical research that turn which directs it toward educational results. By implanting educational ideals it renders possible a saner judgment of educational

values, which in turn assists in the selection and evaluation of methods. From the history of the past and the literature of the present it seeks to retain the value of experimentation while avoiding waste of time and energy in the repetition of experiments.

DR. A. F. NIGHTINGALE

Formerly Superintendent of High Schools, Chicago, Ill.

In our earliest childhood we learned from the lips of wisdom that the largest success in life, whatever our calling, profession, or business would come only as we had the highest ideals. A high ideal, however, is of little value, and will change neither "spots nor color" unless our aim be fixed constantly toward that ideal. The motive, the moral attitude, is the most essential thought in one's life.

The question of sex.—Before discussing the essential qualifications of the ideal secondary teacher, let us touch upon that division of the subject which is attracting much attention, provoking much dissension, and bringing into view a startling array of statistics, viz., the ratio of women to men in the public schools of the United States.

While this question has special relation to the common schools, it is a factor which cannot be eliminated in the solution of the high-school problem, and enters with irritating effect into our reflections as to the quantity and quality of those credentials, physical, intellectual, and moral, which the welfare of our secondary schools demand of every teacher.

His Reverence, the eminent Bishop Spalding, of Peoria, some time since said, "Women are employed almost exclusively in our public schools, because their services are cheap;" and added that the same motive would justify us in employing convicts as a still more frugal method of employing teachers. Without commenting on the worth or the wisdom of the statement especially regarding "convicts," is not the bishop correct, when we get down to the final analysis of the motive which prompts the employment of such an abnormal ratio of women in our schools?

It is a maxim in all other kinds of business that the best is the cheapest, but in securing teachers, boards of education seek to be justified in reversing this truth, and making the cheapest the best. Go where you will you hear it said, "We need more men, but we cannot offer the salaries they demand." This is a true statement, and as sad, as degenerating, and as degrading as it is true, and therefore

ought not the sex, which represents the pathos, the purity, the piety of this world, through whose nurturing influence the flowers of hope are made to bloom perennial in the garden of the heart, whose solace is a surcease of sorrow, and whose soul, instinct with the love of maternity, goes out toward childhood, to mold it through sympathy as does no other influence save the directly divine—ought not, I say, the sex to combine in their majestic potency to make this statement a libel rather than a truth?

In Massachusetts, from quite recent statistics, of all its public-school teachers 90.5 per cent. are women and only 9.5 per cent. are men. In Illinois 71.3 per cent. are women and 28.7 per cent. are men.

The ratio of men is constantly diminishing.—I am one of those who believe that the same work performed with the same skill, and producing the same beneficent results should receive the same pay. I also believe that at present there are more men than women thoroughly well qualified to teach in our secondary schools, and that therefore the large ratio of women to men in these schools militates greatly against the quality of the work they ought to turn out, as the crown of our public-school education and as fitting-schools for colleges.

I would not be misunderstood. I believe in the higher, the highest education of woman. I am in hearty accord with her purpose and ambition to enter all the professions, all the trades, all the departments of industry. She is entitled to the right of way along every avenue where moral character is to be molded, intellect developed, or support secured. I only insist, and I believe my position is sustained by the logic of nature, and by the necessities of the age, that a parity of number shall be maintained in our high schools, that where education, experience and ability are alike, there shall be as many men as women employed, and that there shall be no discrimination of salary based upon sex.

Moral character.—Since the age of pupils in our secondary schools is such, that these pupils respond to influence virtuous or vicious more readily than in any other period of their lives, and since the end of all school education is character, the first essential of an ideal secondary-school teacher is moral character. Without this, and of a very pure and exalted kind, no one can be an ideal teacher, however rich may be the scholarship, rare the knowledge of the child or ripe the experience.

Scholarship and academic culture.—It is a trite saying that edu-

cation is a primal qualification for those who would mold the pliant mind of childhood, and shape it into a character that shall bless the world by its influence, but education is a term which in our time is too loosely defined.

I have great respect for specialists who fill the measure of their days in investigation and research, seeking after and delving into hidden things in the universe of God's thought, in the realm of nature. I honor the philosopher who spent his life upon the Greek article, and in dying sighed that he had not given his years to the dative case; but I would not employ him as a teacher of elementary Greek in our secondary schools. We look to the laboratory and the cloister for those revelations which revolutionize scientific thought, and present to us the origin and development of psychical entities; we bow in silent awe before those who discourse with such eloquent and unlimited verbiage about child-study and the concentration, correlation, and co-ordination of the various branches of learning; but the student who gives his life to the laboratory, and the teacher who stands before the living child are two different individuals. The physicist and chemist who teach our youth should sit not only at the feet of Helmholtz and Leibnitz, of Faraday and Thompson, but at the feet of Homer and Dante and Shakespeare as well. The classicist who unfolds the beauties of Cicero and Homer should also be well tutored in mathematics and science. Our colleges differentiate too early. Candidates for positions in our secondary schools should not commence a university course at their entrance to college.

I desire to make a plea for broad culture, symmetrical training, an all-around education in language, mathematics, science, and history; and for a persistent and never-ceasing study of English classics and English literature. For, as President Eliot says, "The power to rightly understand, to critically use the mother-tongue, is the consummate flower of all education." I believe in departmental work in our secondary schools as in our colleges, but the spire should be built on the top of a finished building, resting on solid foundations. One, then, who gives all his college life to a single subject, pursuing besides only those studies which are intimately collateral, may be giving full rein to a marvelous genius, and preparing himself to become a benefactor in the discovery of some secrets in the physical or psychical world, which shall ameliorate the condition of humanity and hasten the millennium; but such a person deserves no place as a

teacher of youth in our secondary schools. The education of a teacher should be first general, then special. I have seen it written,

All art seeks the highest form of expression for what it creates. The cathedral is the highest expression of art in architecture; the oratorio and symphony in music; poetry in literature, and eloquence in oratory. As the human soul is God's expression of what is greatest in man, so that is the greatest of the fine arts which shall express the most of man's greatness. Knowledge in all its forms, is the marble in the quarry, or dragged up on sledges a little away from the primeval mud. Literature is the subsequent statue, full of grace and snow-white in purity. Language then as the gateway to the soul's highest expression is the center about which all studies correlate.

I would make language then, ancient, modern, foreign, native, the basic study for all who would become successful teachers. Upon these foundations laid deep and strong, I would build a superstructure, scientific in character, mathematical in correctness, historical in breadth; and upon this building poetical in its symmetry, beautiful in its proportions, richly plain and plainly perfect in all its inner furnishings, there should rise some magnificent turret, original in design and typical of a special genius, which should tell to all around its exact location and for what it is specifically adapted.

The very minimum of preparation in scholarship should be a college education; an education general in character, removed at least four years from high-school training; and where circumstances may permit I would add one year of resident graduate work along specific lines, and two years of study and travel abroad.

Progressive scholarship and social activity.—This education, however, to the real student, to the scholarly scholar, will be but a beginning of those intellectual possessions which shall be easily and delightfully acquired as the years unfold; but one who, having secured the meager discipline of a high school, attempts to acquire the knowledge and power sufficient for a secondary teacher, through university extension circles, Chautauqua courses, summer schools, normal schools, and private study, will ignominiously fail to secure that kind of scholarship which the needs of our secondary schools demand.

The real teacher will always be a student. He will not spend his years in riotous living, his evenings in social pleasures, nor his leisure in flattering his own conceit by writing books for an already congested market. He will be furnished with an ever-increasing library

of his own, he will be a patron of the public library if one is at hand; he will be a social power in the community where he lives, the inspirational center of every literary circle, and more than a Delphian oracle to all the young people around him.

But "pity 'tis, 'tis true," intellectual attainment, education, is only one of the essential elements of a teacher's equipment. You may call it the headstone of the corner if you please, but the headstone of the corner is only a small part of a great structure.

Temperament and personal qualities.—Much, I shrink from thinking how much, depends upon the temperament of the teacher. Many a school has been ruined, many a pupil's life has been spoiled, and the current of his activities turned into wrong channels, by some teacher, whose words, sharper than a serpent's tooth have produced irremediable wounds. A dyspeptic, the victim of a disordered stomach, who enters the schoolroom under the influence of "an undigested bit of beef, a blot of mustard, a crumb of cheese, a fragment of an underdone potato," is a maniac, and a patient public should insist upon his retirement. A cross, peevish, nervous, sarcastic, wizened-souled, torpid-livered man or woman has no business with the profession of teaching. To be a teacher, a guide, a trainer, a safe counselor of youth, one must be a paragon of kindness, patience, and love ; not a kindness that encourages disorder, not a patience that brooks an insult, not a love that borders on maudlin sentimentality ; but a kindness, patience, love that are divinely given, divinely developed ; these virtues, these graces, should be so enthroned in the mirror of the soul, so interwoven into one's intellectual attainments, that a company of youth sitting day by day under the benignant influence of such a character, would be molded into such a oneness of industry, ambition, and appreciation, that the memory of that teacher would forever be the Mecca of their deepest gratitude. While a pupil bright, industrious, keen in perception, quick in adaptation, appreciative, thoughtful, excites our admiration and tempts our best attention, it is rather the dull pupil, whose hereditary possessions are few, but whose application is diligent, who has never yet felt the touch of a master hand upon his sleeping talent, and the mischievous pupil, who is in a constant state of natural ebullition and whose intellectual fermentations find vent at most inopportune times, that call forth our highest talents, and test our real ability. These are the pupils that try our patience, and exhaust our kindness ; and yet these are the

pupils whose welfare demands the richest products of a most serene temper and who will not brook either acrid words or an attitude of indifference, and the teacher will become the true teacher only as he secures the respect, wins the confidence and gains the absolute affection of the dull, the indolent, and the mischievous; and these will come only as a result of an exhibition of patience and kindness which is second only to scholarship in a teacher's equipment.

The silent influences of nature are stupendous in their results. We see them in the blade of grass, the unfolding leaf, the bursting blossom. They are everywhere present, night and day, noiseless yet maturing, producing all that is beautiful, and sad to say, all that is baneful. In the very breeze that fans us as we walk the streets may lurk the bacteria of disease as well as of health. It is equally true and equally demonstrable, and without the aid of a microscope, that every person carries with him an atmosphere of good or evil; and far more eloquent and infinitely more impressive than all his precepts and all his professions, is the silent influence of his daily example.

Power of example.—Personal appearance then bears no insignificant relation to a well-appointed teacher. I do not refer to beauty of face, for sometimes upon the homliest features there sits those qualities of soul that transfigures the person until "his face shall shine as the sun and his raiment be as white as the light." I refer to that personal appearance that manifests itself in tidiness of person, in neatness of dress, in grace of posture, in correctness of gait, in civility of manner, and in all those graces and amenities, whose silent influence will metamorphose character, and establish right habits in those who are to us as clay in the hands of the potter; but a teacher, I care not if his scholarship approaches perfection, who is careless of his personal appearance, slovenly in his dress, awkward in his gait, boorish in his manners, whose taste for the graceful and the beautiful has not been developed, and who forgets that the way he sits and stands and walks, the way he dresses and addresses, is having a silent and incalculable influence upon the character, life and destiny of all his pupils, is not fit to be in the schoolroom. It is no place for cranks and dudes, for people of eccentricities and idiosyncrasies who take more pride in being unique and peculiar than in being civil and gracious. When one's instruction is such as to inspire confidence, then his every attitude will provoke imitation, so that the better the instructor, the more important is it that his per-

sonal appearance, his manners, his dress, his conversation, his every movement shall reflect the Christian gentleman.

Voice and oral expression.—Let me speak of but one more essential characteristic of the real teacher—a gentle, well-trained, cultivated, mellow, musical voice—a voice so attuned to pleasing harmony as to attract the listless, stir the ambitious, inspire the thoughtful. A harsh, rasping, shrieking voice, the mouthing of one's words, carelessness and lawlessness of utterance are faults so glaring that their toleration is a constant surprise. There is no sense so acute as that of hearing, and it is through the ear rather than the eye that pupils learn the form and use of words. Poor spelling, the absurd application of technical terms, and the strange answers to questions set for an examination are often more the fault of the teacher than the pupil.

A distinct articulation, a clear enunciation, a proper pronunciation, the taking off of one's hat in respectful courtesy to every English word and to every syllable of that word is an all-important culture to one who would be an exemplar of the English language before his pupils. The reading of the English classics in our high schools is something abominable.

In our intense anxiety to teach literature we have abandoned all attention to voice culture, and while I would not sacrifice thought to utterance, they are to my mind inseparable when one is reading aloud. I am not arguing for elocution in its vicious sense, nor for Delsarte in its excessive forms, but I do contend that we shall not be able to cultivate a literary sense in our pupils, unless we are able to read literature with a full application of its emotional feeling, and awaken in our pupils such an appreciation of the style as well as the content, that they will be aroused to cultivate the ability to differentiate between the pathetic and the humorous, the didactic and the descriptive, in vocal expression as well as in thought comprehension, and not read the "One Hoss Shay," the "Sermon on the Mount," "The Death of Paul Dombey," and "Rienzi to the Romans," all in the same tone, with no stirring of the passions and no change of the features. This is all out of nature. The young woman standing at the bedside of a dying mother, the young man, with all his nerves at full tension contending on the football ground, will each show in the play of every feature, emotions befitting the occasion, and it is quite unpardonable that in our high schools where there should be the

freest exercise of the organs of the voice to insure not only good tone, but a healthy development of other physical functions, the natural should be so subordinated to the artificial, that we are forced sometimes to say that pupils seem to make progress in spite of their teachers.

Summary and conclusion.—In this honest but homely way I have presented some of the qualifications which I deem essential for those who would enter the profession of secondary teaching. Is the picture overdrawn? Are the conditions exaggerated? Do I exalt too highly the teacher as an exemplar of physical health, mental acumen, moral power? Can one who is to guide, direct, control the mental trend, fashion the moral habits and shape the destiny of the youth of this generation be too erudite? If, as Emerson says, "the true test of civilization is not the census, nor the size of cities, nor the crops, but the kind of man the country turns out," then as men and women largely responsible for this civilization, we cannot have our voices too thoroughly trained, we cannot be too careful of our personal appearance, we cannot have our morals and manners, and our relations to society, too nicely defined, we cannot cultivate too even a temper in all our methods of discipline, we cannot enter the profession with a scholarship too rich, ripe and rare, nor improve upon it in our experience with too much reading, reflection, and study.

When there shall be a parity of salaries among men and women, when they shall have all their powers fully and ornately developed, when moral character as well as mental equipment shall dominate in the choice of teachers, then will our secondary schools excel all other agencies, in advancing and perfecting the civilization of the twentieth century.

J. F. BROWN

Inspector of High Schools, State University of Iowa, Iowa City, Iowa

This paper will be limited to a very brief statement of the qualifications which the writer conceives to belong to the ideal secondary teacher. No attempt will be made to discuss these qualifications at length.

Personally.—The ideal secondary teacher should have good health and sufficient strength to endure without serious fatigue the drafts made upon his vitality by the teaching and by the nerve-strain incident to the control and direction of impulsive, buoyant youth.

Poor health and lack of endurance on the part of the teacher are responsible for many misunderstandings and consequent lack of hearty co-operation between teacher and pupil. He should be able to command the respect and confidence of pupils. If to this faculty there can be added a personal agreeableness that wins well-sustained popularity, so much the better. He should possess a certain sprightliness of spirit which renders him at all times a match for the more or less spasmodic spirits of his pupils. He should be able to understand and enjoy the innocent enthusiasms of youth. He should have a healthy sense of humor, a great power to enliven the monotonous routine of daily work, and to take the sting out of an unpleasant situation. The ability to see and enjoy the humorous and to relieve the tension of a seriously uncomfortable position by a well-timed humorous remark is of special value in the management of boys.

He should possess self-control, not cold stolidity or unbending dignity, but a never-failing command of himself and his resources, showing itself in position, movement, and word, and perhaps most of all in the voice, that wonderful power for good or ill in all social intercourse. This self-control usually manifests itself in a certain repose, not pose, of manner which is a great power in determining the atmosphere of the school. He should have a strong interest in human nature, especially in the ultra-serious moods and the tempestuous impulses of youth. This interest breeds appreciation and sympathy. He should be able to understand and to let his young friends know that he understands, even though he may disapprove and chide. He should believe in boys and girls and have faith in the greatness of the work in which he is engaged. His deepest convictions, his ideals, and his habits should make for good citizenship and high character. He should be a man, she should be a woman, in the best sense of the terms.

Scholarship.—The ideal secondary teacher should possess a scholarship broad enough to give him a fair appreciation of the world's work and of the whole field of human culture. He should understand and appreciate the work of men and women outside his own field of labor, and he should be able to mingle with them in social and business relations without showing too plainly the earmarks of his own vocation. He should know enough to know there are many fields of human knowledge and effort just as important as his own even though they may not be so interesting for him.

His knowledge of his own particular subject should be thorough enough to enable him to spend his energy in studying the needs of his pupils and in devising the best methods of presenting his subject, rather than in the mastery of the facts with which the subject has to do. He should be able, on occasion, to entertain, instruct and inspire his pupils by lecturing to them—a much easier task than that of securing good oral or written work from them. He should have sufficient scholarly interest in his subject to incite him to constant advancement in it. He may even contribute something to the sum total of human knowledge in his chosen field. A very important though necessarily somewhat limited sphere for his activities may be found in the writing of textbooks. Good secondary teachers must necessarily study methods of presenting their subjects, hence the excellence of many textbooks prepared by them. The teacher's knowledge of subjects closely allied to his own should be sufficient to enable him to bring out clearly the relationship existing between them. He will probably be more efficient if he can teach two or three subjects equally well.

The extent of his scholarship measured in terms of school degrees cannot be dogmatically stated. There are many exceptions to any definite rule. The writer's observation leads him to believe that the bachelor's degree from some good college or university is none too much as a minimum. In many cases it is clearly insufficient, for example, when the course pursued has included a little of many subjects but not enough of any one to give an adequate knowledge of it. If to a well-selected college course there can be added a year or two of graduate study along special lines, the equipment is so much the better. But when this advanced work is done, the teacher sometimes needs to be reminded that his duty is not primarily to make scholarly specialists of his high-school boys and girls, but to train them in thought, power, and character by means of the various instrumentalities of the school, his particular subject being one among many others.

Professional knowledge and training.—The professional preparation of the ideal secondary teacher should include, first of all, a knowledge of educational psychology, especially the psychology of the adolescent period. Such knowledge constitutes a rational basis for patience and skill in dealing with the eccentricities of youth. He should know something of educational values and understand the

philosophy underlying the school course of study. This should assist him to act wisely in the adjustment of work to the needs of the individual.

Every secondary teacher should have some knowledge of school organization and administration in order that his part in it may be intelligently done. If his duties be executive to any considerable degree, his knowledge of this subject should be correspondingly greater. Some experience is necessary before the ideal teacher arrives. That experience may well be gained in a small high school under the direction of a competent superintendent or principal. The teacher will not be unfortunate if, in this apprenticeship, he is required to teach several different subjects.

The writer firmly believes that many of the mistakes made by inexperienced teachers in their first service could be avoided if they could have the advantage of observation-classes and practice-teaching under skilled supervision. However well the lecturer may tell the things to be done and the things to be avoided, the mere telling is necessarily more or less abstract in its nature. Actually seen or done they become concrete. The pupil-teacher's attention has been fixed upon an important fact or principle which might otherwise have been overlooked. The professional training of the ideal teacher should also include some consideration of the school as an institutional member of the social organism and of himself as a personal member of that organism.

III

THE PRESENT STATUS AND PERSONNEL OF THE SECONDARY TEACHING FORCE IN THE UNITED STATES

EDWIN G. DEXTER
Professor of Education, University of Illinois

The plan and method of this study.— Since there is no general prerequisite to admission to the teaching force of our secondary schools, it was recognized that the teachers themselves must be appealed to for the facts upon which to base this study. Consequently, in October, 1904, there was sent to the principals of 1,144 of our public high schools the following letter and blank:

THE UNIVERSITY OF ILLINOIS
DEPARTMENT OF EDUCATION

URBANA, ILL., Oct. 5, 1904.

DEAR SIR OR MADAM:— The next Yearbook of the National Society for the Scientific Study of Education is to be entirely devoted to the question of the preparation of teachers for our secondary schools. One phase of the question — that of the present preparation of the teaching force — has been assigned to me. In the name of that society I am, then, asking you to fill out the inclosed blank for yourself and each of the teachers of your school, and return it to me at your earliest convenience. I fully realize that such requests may seem a burden, but know of no other way to secure the information than through direct appeal to the principals.

Thanking you in advance, I am,

Yours very truly,

EDWIN G. DEXTER.

To Principals of High Schools.

THE NATIONAL SOCIETY
FOR THE
SCIENTIFIC STUDY OF EDUCATION

STUDY OF THE PREPARATION
OF HIGH-SCHOOL TEACHERS

.....School.

.....Town or City, and State.

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>
Teachers (Name or Initials)	College	Normal School	Degrees	Present Salary	Years as H. S. Teacher	No. Subjects now Teaching
1						
2						

[Space for twelve teachers.]

If initials are used in column *a*, indicate females by (*f*). In columns *b* and *c*, give names of institutions. If not a graduate, use a number to indicate years of attendance.

If pedagogical courses were taken in college, add *P* in column *b*. If practice-teaching was done in connection with such courses, add *PP*.

.....Principal.

In each instance a stamped and directed return envelope was inclosed. Since it was seen that not all the secondary schools of the country could be appealed to because of the great expense involved, it was decided, first, that only public high schools should be covered by the study; and second, that states should be selected fairly typifying the different portions of our country, and that the blanks be sent to each school within those states, as shown by the tables for public high schools in the 1902 report of the United States Commissioner of Education. The following states were therefore canvassed: Massachusetts, Connecticut, Rhode Island, Delaware, District of Columbia, North Carolina, Alabama, Illinois, Minnesota, North Dakota, Colorado, Montana, Idaho, New Mexico, Utah, Washington, California, Nevada, Indian Territory, Arizona, and Wyoming.

With the sole exception of the city of Boston, which was believed not to be typical of American high-school conditions, each high-school principal in each of the states mentioned received the blank — unless the mails miscarried. In addition to the information so received, the 261 high schools within the state of Illinois either wholly or partially accredited to the state university were studied by means of the blanks on file in the office of the high school visitor. Since, however, these did not cover the facts included in Topics 13, 14, and 15, of the following tabulation, Illinois does not figure in the study for those particulars. A few states having but a limited number of high schools failed to make any response whatever to the letters sent out, and as a consequence do not figure in the study. Those which

made a more or less general reply and so are included are as follows: Massachusetts, Connecticut, Rhode Island, Delaware, District of Columbia, North Carolina, Alabama, Illinois (as explained), Minnesota, North Dakota, Colorado, Montana, New Mexico, Utah, Washington, and California. Although in the tabulation which has been made of the returns each state was considered separately, it has not been thought wise to print the extended tables in the Yearbook, so in a general way the geographical divisions made use of by the Commissioner of Education in his printed reports have been followed. The one exception to this is in the fact that the South Atlantic and the South Central divisions are combined, the two together only furnishing sufficient data for a single group large enough to reduce the probable error due to accidental variations, to a safe working basis. The following table gives the statistical results of the study for four great geographical divisions of our country as well as the totals for the whole country. It has seemed to me that the simplest way to discuss these findings is to consider each topic of the table as shown in the left-hand column separately, or at least only to make such groupings as shall express most plainly the facts.

It is no more than right to say that the considerable labor of preparing the table has been done under my direction by Mr. C. C. Burford, graduate student in the Educational Seminar of the University of Illinois.

General conditions covered by the study.—(Topics 1, 2, 3, 4, 5, and 6.) As will be seen (Topic 1 in the table) the total number of schools appealed to for information, or for which it was already at hand, was 1,305, or about one-fifth of the total number of high schools in the country. In the next line it is shown that 583, or 44.6 per cent., are covered by the study. If we subtract the 261 Illinois high schools from that number we find that but 322 out of more than 1,000 high schools directly appealed to, or less than 33 per cent., took any notice whatever of the letter. Although I fully recognize the fact that appeals for information have become something of a nuisance, considering the fact that the request came from the National Society and that the reply was made as easy as possible and without expense, the meagerness of replies seems to me to be something of a reflection upon the general educational interest of our high-school principals. Undoubtedly, too, the meagerness of return, indicates that we are studying a selected group of high schools rather than the typical

TABLE I

	North Atlantic Division	South Atlantic and Central Division	North Central Division	Western Division	Total
1. Number of high schools.....	341	122	510	332	1,305
2. Schools reporting:					
Number.....	160	26	313	84	583
Per cent.....	46.8	21.3	61.2	25.2	44.6
3. Number of male teachers.....	421	101	817	234	1,573
4. Number of female teachers.....	1,178	156	1,027	285	2,646
5. Total number of teachers.....	1,599	257	1,844	519	4,219
6. Average number of teachers to schools:					
Male.....	2.6	3.8	2.6	2.8	2.7
Female.....	7.3	6.0	3.3	3.4	4.5
Both.....	9.9	9.8	5.9	6.2	7.2
7. Teachers, college graduates:					
Male, per cent.....	78.6	65.5	66.8	74.3	70.3
Female, per cent.....	43.2	23.1	63.5	74.3	53.3
8. Teachers with coll. training, not graduates:					
Male, per cent.....	4.5	10.0	7.7	10.2	7.3
Female, per cent.....	8.7	13.6	11.8	8.4	10.2
9. Teachers, normal-school graduates:					
Male, per cent.....	8.3	15.8	20.4	8.9	15.2
Female, per cent.....	6.5	21.2	16.0	12.3	11.7
10. Teachers with less than above training:					
Male, per cent.....	2.3	2.0	1.7	2.9	2.0
Female, per cent.....	7.5	17.7	8.4	7.8	14.5
11. Teachers with special training:					
Male, per cent.....	5.2	13.0	4.8	5.1	5.5
Female, per cent.....	3.9	10.0	6.3	4.8	4.9
12. Teachers with graduate work:					
Male, per cent.....	25.1	24.8	17.6	22.2	20.7
Female, per cent.....	5.8	4.5	6.5	11.2	6.6
13. Teachers with pedagogical training:					
Male, per cent.....	7.1	2.0	8.7	29.6	5.5
Female, per cent.....	5.3	6.3	14.3	25.9	6.1
14. Teachers with practice-teaching:					
Male, per cent.....	5.4	....	3.2	3.4	2.2
Female, per cent.....	2.4	....	1.2	10.5	2.3
15. Average salary of teachers:					
Male.....	\$1226	\$805	\$956	\$1219	\$1145
Female.....	589	520	639	889	652
16. Average number of subjects taught:					
Male.....	3.8	4.1	3.1	3.1	3.2
Female.....	3.4	3.6	3.0	2.2	3.1
17. Average years experience of teachers:					
Male.....	8.9	7.8	8.7	7.5	8.7
Female.....	6.1	5.1	6.5	4.4	6.1

American high school. As a rule we are more willing to furnish information of which we have some reason to be proud than when the reverse is true, and undoubtedly, the general average of the schools making reply was above that for those which have kept their silence. In fact, this is plainly indicated by the returns considered by divisions and by states. If we leave out the North Central division, which is affected by a totality of returns from Illinois, the percentage of returns from the other divisions represents fairly well the relative perfection of what we have reason to believe is the condition of the high-school system. In the instances of particular states this is especially noticeable. It would be impossible to say how much allowance should be made in the conclusions of this study because of these selective influences, but certain it is that until the time arrives when full returns are obtainable, no method of study seems possible that shall eliminate them.

As shown by the figures under Topics 3, 4, 5, and 6 of the table we see that our study covers 4,219 teachers of whom 1,573 (37 per cent.) are males, and 2,646 (63 per cent.) are females, with an average of 7.2 teachers to a school. A comparison of these figures with those for public secondary schools in the advance sheets of the commissioner's report for 1903 confirms our impression that we are studying, though unintentionally, a selected group of schools, for although our study covers roughly but one-thirteenth of the schools it includes about one-sixth of the total number of high-school teachers in the country. This makes our average number per school (7.2) exactly double what the commissioner finds it for all the schools (3.6).

The relation between the sexes in the teaching force in the group of schools that we are studying and in the larger group furnishes an interesting comparison and suggests a question. As has already been stated, in our 583 schools, 37 per cent. of the teachers are males and 63 per cent. are females. In the high schools of the country 48 per cent. are males and 52 per cent. females. Yet we have stated our belief that the smaller group included the highest average of schools from the general standpoint of organization and efficiency. But this same group of schools is taught much more largely by women than is the other. Are we to conclude that efficiency in high-school work is to be gained through its feminization? Such is contrary to the opinion of the majority of general pedagogical writers who have

discussed the needs of the modern high school. It is true that the *a priori* ideas of pedagogues discussing general educational problems have little weight, and perhaps should have little, with school officers who are after real efficiency in school work. Still it has been a surprise to me to find that theory and practice are so wide apart as our figures would seem to imply. An explanation which seems plausible to me is that we have in our study but few of the one- and two-teacher high schools which abound in some parts of the country and that the excess of males in such schools gives the Commissioner his relative showing between the sexes. In support of this hypothesis I find that of the 328 public secondary schools with but one or two teachers that the Commissioner reports from the state of Indiana (chosen at random) 379 of the teachers are males while but 57 are females. This tremendous preponderance of male teachers in the smallest schools that are even classed by the Commissioner as high schools would so throw the balance of the sexes, that from his report, it would be impossible to tell what their distribution is in the better-organized high schools, and make it seem probable that our showing for the limited group has little meaning.

High-school teachers who are college graduates.—Coming now to the figures in our tabulation that have a direct bearing on the preparation of the high-school teacher, and for which so far as I know no comparative data exist, we find, first, that 70.3 per cent. of the male teachers (and it will always be understood that we mean of the group studied) and 53.3 per cent. of the female teachers are college graduates. This means, to be sure, graduates of institutions of every class from the greatest university to the smallest college, but care was taken in the tabulation to see that no recognition was given (except in Class 10) to institutions not classed by the Commissioner as of college standing. This seems to me to be a surprisingly favorable showing. Among the males there are but slight limits of variation for the different divisions. In this respect the females are in marked contrast, the South having less than one-third the proportion of college-educated women upon its high-school teaching force than the western states have, and but little more than one-half that of the East. In fact, almost the entire discrepancy between the two sexes is to be found in the South and East, the western states showing an exact equivalent between the two and the north central states a difference of but 3 per cent. The latter fact is due, no doubt, to the prevalence

of co-education in the higher institutions of learning throughout the central and western portions of our country. The tabulation, by states, of college graduates upon the high-school teaching force shows some interesting facts. Every one of the nine males reporting from Montana had his college diploma, though the group is too small to carry much weight. Minnesota and Rhode Island came next with 86 per cent., with North Dakota, California, and the New England states following close. For the women, California stands at the head, 84 per cent. (2 per cent. more than for men), with Rhode Island second.

High-school teachers with a partial college course.—The above figures, it will be remembered, are for college graduates. Topic 8 in the tabulation covers those teachers who have taken some parts of an undergraduate college course but did not complete it. We have no reason to suppose, however, that in many instances its completion is more than a question of time. The tabulation does not show the number of years taken. In this class of non-degreed college students we find 7.3 per cent. of our male teachers and 10.2 per cent. of our female teachers. If we add these percentages to those covering college graduation for each sex, we find that 77.6 per cent. of the males have come under the influence of the college, with the percentage standing at 63.5 for the women. Throughout the southern states this class of teachers—the ones with the uncompleted college course—seems more abundant than in the other parts of the country, a fact from which we might infer that in the South the college course is looked upon less as a unit than as a composite, parts of which figure as important elements in an educational career.

High-school teachers with normal-school training.—Turning now from the college-trained teacher, we come to that part of our study which covers preparation through dependence upon other parts of our general educational machinery. No. 9 is for the normal schools. From the figures given under it we see that of the male teachers 15.2 per cent. have had such training, and of the females, 11.7 per cent. In other words, out of the whole number of 4,219 teachers but 549 (239 males and 310 females), or 12.7 per cent., were from the normal schools. A study from the standpoint of geographical divisions shows, seemingly, a marked difference on the part of the high schools in the different parts of the country, in their attitude to the normal-trained teacher. In the middle West and the South nearly one-fifth

are so trained, while in the East and far West the proportion is nearer one-fifteenth. Considered from the standpoint of particular states, North Dakota has depended upon her normal schools most fully, more than 30 per cent. of her high-school teachers having been trained there. North Carolina equaled that percentage for the female teachers, but fell far below it for the males. Illinois comes next with 21.5 and 15.5 for males and females, respectively. At the other extreme comes Rhode Island with roughly 4 per cent.; California with 8 per cent., and Massachusetts, Connecticut, Delaware, Minnesota, and Colorado, each under 10 per cent. An analysis of these figures goes to show that perhaps with one or two exceptions the efficiency of the high schools varies inversely with the number of normal-trained teachers. This must not, by any means, be interpreted as meaning that the normal schools are not doing their work well. Far from it. In my opinion no branch of our public-school system is fulfilling more completely its function than our public normal schools. The figures, to me, imply that our high schools do not as a class seem to consider the normal schools appropriate sources of supply for their teaching force, and that they only use such teachers as a makeshift until others, with better academic preparation than the normal school can supply, are available. Such an attitude, if it exists, is certainly one of great hopelessness for our elementary schools, for it means that the normal schools are not likely to be tempted to devote time and energy in an attempt to train high-school teachers when their own needs are so pressing. To my mind the serious problem is not whether the high schools would suffer if the normal schools should turn their attention particularly in their direction, but whether the elementary schools could stand such a change of interest upon the part of the normal schools without serious injury.

There is shown by the blanks, though the fact is not expressed in the tabulation, to be but little lapping over of the groups of college-and normal-trained teachers, there being but fifty-six men and fifty-two women with both a normal and college preparation. Illinois is not, however, covered by these figures, since the facts were not available. Of the teachers included in both groups, eighteen men and twenty-four women, were from Massachusetts. The facts for the whole group would seem to be that between one-fifth and one-sixth of the normal graduates upon the high-school teaching force have also availed themselves of college advantages. It is impossible to tell from the records which work was taken first.

Teachers with less than the above preparation.—Where no data covering preparation were given, as well as when institutions were mentioned which were known to be of less than college- or normal-school standing, teachers were placed in this class. As will be seen, much the larger number so included were women, though even for them the percentage is surprisingly small. Compared with the numbers of persons who have even achieved more than ordinary success in other callings the high-school teachers who have not gone beyond the stage of secondary instruction is very small. In a study which I made of the educational preparation of persons mentioned in *Who's Who in America*, I found that of six hundred and twenty-five clergymen 24.4 per cent. had gone no farther than the secondary schools; of the physicians 7 per cent., of the lawyers 39.8 per cent., and of the college professors 8.6 per cent. Yet our study shows that of the male high-school teachers but 2 per cent. have made so little use of our educational machinery, and of the females but little more than one-third of the percentage of eminent lawyers.

High-school teachers with special preparation.—Topic 11 upon the tabulation covers the conditions for special oratorical or musical or other forms of æsthetic training on the part of the high-school teacher, and has no particular value from the standpoint of our general study. We are led to wonder from the figures what it is that has turned the teachers in the southern portion of our country so largely in the direction of such subjects, yet the group of teachers studied from that region is comparatively small and the excess may be accidental.

High-school teachers with post-graduate preparation.—The facts disclosed by the figures under No. 12 of the tabulation are encouraging, showing as they do, that more than 20 per cent. of our male teachers (29 per cent. of all who are college graduates) and 6.6 per cent. of the female teachers (15 per cent. of college graduates) have carried their academic or professional training beyond the stage of the bachelor's degree. In this particular there is little variation among the males for the different geographical divisions except that in the middle West there is a considerable discrepancy. For the women teachers that division is up to the average, while the far western states are nearly double the average for the other parts of the country. California and Washington are the particular states that contribute most largely to this condition.

College-trained teachers having had pedagogical instruction.—

The next two numbers on the tabulation are intended to give certain particulars regarding the strictly professional preparation of the college-trained teacher. We are forced to confess, too, that they show but little influence as yet on the part of the pedagogical departments in our higher academic institutions. From the column of totals we see that but 5.5 per cent. of the males and 6.1 per cent. of the females have made any use of such departments. This means about one college man in fourteen and one college woman in nine, the country over. The fact is not so strange as it might seem at first thought, for but few pedagogical departments, even where they now exist are more than a decade old; and No. 17 upon the tabulation shows that the average high-school experience of the teachers whom we are studying runs well up to that time. This would mean that a large number of them entered service before pedagogics were taught in the colleges. The forthcoming report of the Commissioner of Education will show that 12,192 students are now taking pedagogical courses in colleges and universities, or roughly, one in seven of the student body. The tremendous excess of pedagogically trained college students shown by the tabulation of the far West, is due very largely to the requirement in California of one year of pedagogic instruction before a certificate to teach in the high schools of the state is granted. This requirement seems to have influenced contiguous states, for all show high percentages in this particular. Except in the same region practice-teaching in connection with pedagogical instruction in the colleges is practically a negligible quantity. In Rhode Island the arrangement between the pedagogical department at Brown University and the high schools of Providence is plainly shown, for 13 per cent. of the men and 16 per cent. of the women teachers of that state report practice-teaching. Other than that, no state in the union save California alone for women, which gives 17.7 per cent. shows that more than roughly one teacher in twenty of those college trained, has had the benefit of the practice-school.

This completes our study of the preparation of the high-school teacher. The other three topics upon the tabulation, unless it be the last, having to do with the conditions under which they work.

Average salary of teachers.—For men this is shown to be at its best at the two extremes of longitude within our country—the East and the far West, the average being about \$100 a month for the twelve months of the year in those divisions. It is shown to be about

two-thirds of that amount throughout the South and three-fourths of it in the middle West. Illinois is not included in this portion of the study. My belief, however, is that it would tend to reduce the figures as given. The great difference between the valuation of man's work in the schoolroom and that of the woman is almost pathetically shown. In the East her salary is less than one-half his; in the South relatively more, though absolutely less. Both in the middle and far West the discrepancy is less, but only in the latter division does it approximate a living salary for a person occupying the place that a high-school teacher is expected to take.

Average number of subjects taught.—The figures under this heading are both an inspiration and a warning; an inspiration inasmuch as they show at least for the group of schools studied that something approximating specialization has already come in one high school, and that teachers as a class are no longer expected to cover the entire curriculum: a warning to the prospective teacher not to narrow down too closely in his preparation and so find himself out of touch with school requirements. The figures show that for the country as a whole the teacher may be expected to cover roughly three subjects. Only in the far West is the average less than that, and even there for women alone. It will be noted that throughout the country the women teachers are expected to teach fewer subjects than are the men.

Years of experience.—The figures under this heading were to me surprisingly large, especially for the women. When we consider the tremendous high-school growth during the last ten years (9,489 instructors in 1893, 24,349 in 1903), and that the recruits to the teaching force have been largely recent graduates, we are forced to believe that there are many covered by our study who are well along in years. Still this is as it should be and as we would have it.

Relative efficiency of normal- and university-trained high-school teachers.—It was intended that the part of this report assigned to me should include, besides a statement of fact as disclosed by the study already presented, as full an expression of opinion as possible on the part of superintendents and principals as to what constitutes the ideal preparation for the secondary-school teacher. For two reasons it does not seem to me best to go into any extended discussion of that question in the printed pages of the Yearbook: first, because such a discussion is already in print; and, second, it seems to me that the

expression of fact as disclosed in the tabular study is essentially an expression of opinion as to what should be. The printed material to which I refer occurs in Professor Luckey's *Professional Training of Secondary Teachers*. Since, however, it is possible that many have not yet familiarized themselves with his valuable piece of work I shall quote without comment the summary of his canvass of opinion:

As a further illustration bearing upon the same point answers were obtained from over one hundred city superintendents to the following questions: "In selecting a new teacher, other things being equal would you prefer (a) a normal-school graduate, (b) a college graduate with, or (c) without professional training?" The results show that for the grades (elementary schools) 52 per cent. prefer normal-school graduates, 44 per cent. prefer college graduates with professional training, and 4 per cent. prefer college graduates, but do not consider professional training necessary. For high-school teachers 84 per cent. prefer college graduates with professional training, 10 per cent. college graduates without professional training — "The teacher is born, not made;" and 6 per cent. prefer normal school graduates because "they are more efficient teachers," "waste less time," and "make up for lack of scholarship by skill in teaching." It is interesting to note that the younger city superintendents are almost unanimous in their preference for the professionally trained college graduate.¹

This quotation corroborates in a way my feelings stated as the second reason for not taking up an extended discussion of opinions; namely, that the facts express the opinion, at least in so far as conditions can keep up with opinion. To illustrate: The tabular study shows that 12 per cent. of our high-school teachers are normal graduates, and Professor Luckey finds that of the 100 city superintendents no larger percentage wanted teachers with that preparation. If our percentage of 12 of normal graduates holds good for the entire high-school teaching force of the country, about 3,000 of that teaching force are normal-school products; but during the last ten years the public and private normal schools of the country have graduated roughly 75,000 teachers. It would be folly to suppose that the high schools could not secure a larger percentage of them if they desired. It is possible that the small percentage of professionally-trained college graduates in high-school work, does not quite so fully express the preference of the high schools as in the previous instance; yet I am inclined to think that we of the pedagogical departments must take it as something of an evaluation of our work. Certainly if ten years

¹ Luckey, *Professional Training of Secondary Teachers*, pp. 175, 176.

from now anything like the meager showing exists we shall be forced to do so. For at present pedagogical courses are offered in nearly three hundred colleges and universities, and at the rate we are now turning out students we could in four years' time replace every high-school teacher in the country with material from our departments. If as the old ones drop out, we do not do so, it will be because our product is not wanted, and a study of facts would certainly be a study of opinion as expressed by school officers in securing teachers.

Summary and comparison.—To summarize briefly the training of our high-school teachers as a class: All have taken the equivalent of eight years of elementary school work and four years of a secondary grade. Roughly 10 per cent. stopped at this point. Twelve per cent. continued through the two years of the normal-school course. Of the men 70 per cent., and of the women 53 per cent.—a little more than 60 per cent. in all—continued their work through a four years' college course, while 8 per cent. more who started upon such a course fell out by the way. These, however, were more than compensated for by roughly 13 per cent. who supplemented their college course with one or more years of graduate work, twenty-nine out of our three thousand (Illinois not included) going on for the doctorate. The remainder of our 100 per cent. of high-school teachers have had more or less special instruction which cannot be measured in academic units. Of our college men and women 5 per cent. had had pedagogical instruction, some of them a little practice-teaching.

On the whole, this is an encouraging record, giving, as it does, an average of roughly sixteen years of educational preparation. For purposes of comparison, however, it might be well to note what the leading European nations are doing in the way of preparation of their secondary-school teachers. In England conditions are much worse than with us, both adequate secondary-school system and special facilities for providing a teaching force being lacking. For France a comparison is not easily made. But in Germany, which certainly leads all the European nations with its system of secondary schools, conditions are such as to make comparison easy. There the secondary schools are all under government control, and the training of the teacher is such a definite procedure that every step can be followed. In Prussia, which may be taken as a type of the German states, the child destined to be a teacher enters the Gymnasium at about nine years of age, after roughly three years of preliminary schooling, and

continues his gymnasial course for nine years. He then enters the university and he spends three or four years there—more frequently the latter—before undertaking his *Staatsexamen*. This is a very serious test of power, including the writing of themes as well as both written and oral examination. An entire year is usually devoted to it. Upon its successful completion a certificate of fitness to teach (*facultas docendi*) is granted and the candidate for schoolroom honors enters the *Seminarjahr*. This is spent at any one of a number of institutions under advanced pedagogical instruction. It is followed by a *Probejahr*, spent as a practice-teacher at some designated *Gymnasium*. This course having been completed, the candidate is placed on the waiting list with the probability of waiting several years before receiving an appointment. But when this comes he is sure of a permanent government position during his years of active life and a pension for the remainder of his days.

If these various steps are counted it will be seen that the teacher in the Prussian secondary school has spent nineteen years at least in his educational preparation and the number is frequently more. There are, too, no short cuts. This is in marked contrast with our own minimum of twelve years; the limit of fourteen years, which is considered respectable, the average of sixteen years and the maximum of nineteen years attained by so few as to be a negligible quantity. It is true that years spent in preparation are not the only factors to be considered in the making of a teacher, yet after all the time investment is one not to be neglected.

The minimum standard of preparation.—It is the opinion of the writer that our high-school system can never fully perform its function nor its teachers attain the status of professional respectability which should be theirs, until they have invested at least four years' time in the academic side of college work, with at least one year's graduate work devoted largely to a theoretical and practical study of school problems. This investment of time can only be gradually brought about, but I am convinced that the not very distant future will see it.

IV

THE PRESENT PROVISION FOR THE EDUCATION AND TRAINING OF SECONDARY TEACHERS IN THE UNITED STATES

MANFRED J. HOLMES
Illinois State Normal University

The increasing annual demand for secondary teachers.—In 1889-90 there were 9,120 teachers in public high schools, and 7,209 in private schools of the secondary class in the United States.¹ In 1901-2 these numbers had increased to 22,415 for public, and 9,903 for teachers in private secondary schools respectively. The average annual rate of increase of public high-school teachers for the thirteen years was about 1,000. The character and vigor of public high-school growth during the last three years will warrant the assumption that this rate of increase has at least been maintained; therefore there must be about 25,000 teachers in our public high schools at the present time (1905).

How many teachers are added annually to the high-school teaching force? To find this we shall need to add to 1,000, the normal annual increase, the number of those who fill the places of teachers that yearly quit the high-school field; but this number is not shown by any available statistics. It is entirely safe to estimate that 15 per cent. drop out each year. (E. J. Bangs, Assistant Superintendent of Public Instruction of Illinois, estimates the percentage at 15 to 25 per cent. George B. Aiton, now nearly fifteen years State Inspector of High Schools of Minnesota, says: "In my judgment, the average term of service of the high-school teacher in this state is not over four years. I exclude men who become superintendents. There are, of course, many who remain in the work for life. Many others teach but a year, two years, or at the most, three years, before marrying. I think I am safe in saying that in Minnesota from 20 to 25 per cent. drop out annually, never to return." In the light of this statement it should be remembered that Minnesota is one of the states in

¹ Report of the Commissioner of Education [1902], Vol. II.

which the law prevents persons with less than college graduation from competing for high-school positions.) This means that 3,750 must be added to 1,000, making approximately a total addition of 4,750 to the public high-school teaching force each year. The number of additional teachers required each year by private secondary schools may be conservatively estimated at 1,000, making an estimated total of 5,750 to be added annually to the teaching force in both public and private secondary schools in the United States. This estimate is safely below the actual demand.

The problem stated, and method indicated.—It is the aim of this division of our present study to consider what the universities, colleges, and normal schools are doing toward the education and training of these 5,750, and probably more, candidates that yearly swell the list of secondary teachers. To reach this aim it has been necessary to get at three sets of facts and conditions and examine their relation to each other as well as their significance in the study as a whole; first, the number of actual secondary teachers who have availed themselves of these opportunities for special preparation, and the extent to which they have thus availed themselves. This first set of facts and conditions was included under division III of the general subject, and has been investigated and presented by Professor Dexter. Second, the character and extent of the courses offered by universities, normal schools, and colleges for the preparation of secondary teachers; and third, the number of prospective secondary teachers who take these courses. In addition to the second and third sets of facts, which are considered in this division of the study, the present unsatisfactory status of the preparation of secondary teachers seemed to make it advisable to gather a concensus of opinion as to how universities, colleges, and normal schools can more effectively and fully meet the demand for better-prepared secondary teachers. I have therefore given this a prominent place.

Some of the facts for the basis of this division of our study were already at hand. I should especially mention Professor G. W. A. Luckey's *The Professional Training of Secondary Teachers in the United States*, and the *Reports of the Commissioner of Education*. But the present study required data both different from and supplementary to those already available. I therefore sent the following letter and questionnaire to all the public normal schools, and to 159 universities and colleges, including all the larger ones and all such

as reported to the Commissioner of Education a fair representation of students in "teachers' training classes." In addition I sent to some of the city training schools and the larger private normal schools.

ILLINOIS STATE NORMAL UNIVERSITY

DEPARTMENT OF PSYCHOLOGY AND GENERAL METHOD

NORMAL, ILL., October 25, 1904.

MY DEAR SIR:—The problem for investigation and study now before the National Society for the Scientific Study of Education is the preparation of teachers for our secondary schools; and the next *Yearbook* will be entirely devoted to this subject.

It falls to me to report upon the present provisions made for the preparation of high-school teachers, and the number of persons taking advantage of such provisions in our universities and normal schools.

I know what it means for a busy man to take on collateral and extra duties, but I sincerely believe that the importance of this study will enlist your cordial and prompt co-operation to the extent of giving the data called for by the accompanying blank. If all the questions cannot be answered, please answer all you can, and I shall highly appreciate the courtesy and favor.

Thanking you in advance, I am

Very truly yours,
M. J. HOLMES.

PRESENT PROVISION FOR THE EDUCATION AND TRAINING OF HIGH-SCHOOL TEACHERS

Name of School.....

Address.....

I. Courses offered to prepare for high-school teaching.

Name, and Length of Courses
(Send marked Catalogue if preferred)

ENROLLED IN THESE COURSES		
1904	1903	1902

Academic Requirements for Ad-
mission to these Courses

(Space)

II. To what extent do these courses coincide with those for elementary teachers? (Space)

III. Is the amount of observation and practice under expert criticism required in preparing for high-school teaching the same as that required for elementary? If not, why?

(Space)

IV. How can the universities and normal schools more effectively meet the demand for better educated and trained secondary teachers?

(Space)

Return to

MANFRED J. HOLMES,
Normal, Ill.

(Stamped envelope inclosed)

Signed.....

Extent to which universities, colleges, and normal schools are supplying the annual demand for educated and professionally trained secondary teachers.—The returns show that about three-fifths of the universities, colleges, and public normal schools responded. A very few of those that are known to be doing anything definite in the line of preparing secondary teachers failed to respond; hence, the probabilities that the data are representative amount almost to a certainty. The following table offers a view of some of the pertinent facts concerning extent of provision for preparing secondary teachers in the United States:

	Universities	Colleges	Public Normal Schools	Total
1. Number of schools reporting.....	50	42	93	185
2. Offering pedagogical instruction for secondary teachers, but intended for elementary also.....	20	13	17	50
3. Courses for secondary teachers differentiated from and in advance of the elementary.....	16	8	16	40
4. Having courses for preparing secondary teachers only.	5	3	..	8
5. Preparing for elementary teaching only.....	3	10	60	73
6. With no courses for teachers excepting regular academic.....	6	8	..	14
7. Requirement for admission: Jr., Sr., and post grad., usually, for universities and colleges. In normal schools only advanced students and graduates are admitted to courses looking to high-school teaching.	.	.	.	.
8. Having practice-teaching, or observation	21	16	90	127

It should be borne in mind that most of the largest and most of the best institutions of higher education are represented in the figures; and as said before, there were but few universities and colleges known to be doing anything definite and serious toward the training of secondary teachers, that did not respond. Therefore, statistics of this group will represent special provision for and output of prospective secondary teachers considerably if not far above the average for the whole number of colleges and universities in the

United States. It should be noticed that (uniting 5 and 6 in table) about 18 per cent. of the universities and 40 per cent. of the colleges make no provision for the training of secondary teachers beyond the regular academic courses. (The percentage for universities should be lower and that for colleges higher, because some of the universities in name are only colleges in fact.)

The question of how many prospective secondary teachers avail themselves of the provision for special preparation is of more immediate importance to us; but it is also more difficult to answer. My questionnaire aimed to get the number of prospective secondary teachers enrolled during three successive years. These results I intended to compare with Professor Dexter's findings; but almost without exception the numbers reported enrolled included all prospective elementary teachers. From collateral data given one is led to think that much less than half of all students enrolled in pedagogical courses in colleges and universities go into high-school work; although from some of these institutions practically all go into that field. It is safe to say that only a small proportion of the 5,750, or more, teachers entering the secondary field each year come to their work with any professional preparation. We therefore have upon us a large and serious problem to supply enough adequately prepared teachers for our high schools.

Thus far we have been considering the extent of provision made for preparing secondary teachers. We now pass to an examination of the content.

Character of the provision for preparing secondary teachers.—It is not intended that this study shall repeat anything that has already been printed in available form. For a full consideration of this question, therefore, the reader is referred to the bibliography at the close of division V; especially do I suggest Prof. G. W. A. Luckey's *Training of Secondary Teachers in the United States*. I believe every serious student of our public high schools will read this book, which is a pioneer in its line and most helpful. But Professor Luckey's book fails to give adequate consideration to at least two important phases of the general question. First, it does not show with sufficient clearness the fact that the need of more well-trained high-school teachers has compelled some of our normal schools to take hold of the problem in a large, serious way to help meet the demand. All that the universities and colleges are doing supply but

a small part of the great number that must be added to the high-school teaching force each year. Second, he leaves the reader without an understanding of the character of the work these normal schools have necessarily assumed in this line. Then, there is one sin of commission, which consists in the assumption that there should be a strict division of labor between universities and normal schools, turning over to the universities the preparation of secondary and higher teachers, while normal schools take care of the training of elementary teachers.

One must agree with Professor Luckey when considering the question merely from a historical and *a priori* standpoint; but the problem is not one that can be settled by tradition and theory. It is a problem that involves a present condition which must be met now to prevent arrested development and great loss of effective service in one of our most valuable democratic institutions—the public high school. It is of doubtful wisdom to close the question of scope and function of institutions only partially formed, and still capable of new adaptations, as our normal schools are, to meet the growing needs of the life which they exist to serve. The nature and extent of the supply and demand presses the question into the form that President Lord has given it on page 83. Only a few of our colleges and not many of our universities have taken hold of this problem with the same earnestness and devotion that they take hold of their other work; nor, apparently, with a serious sense of their responsibility in the matter. A larger number of better-prepared high-school teachers must be had, and the present outlook seems to indicate that some of the normal schools will have to be equipped to help out the situation.

One can conceive a normal school liberal in its culture, advanced and superior in scholarship, with ample and appropriate opportunity for professional training, environed and informed with those influences that make for strength of character, and force and excellence of personality. Such a normal school here and there throughout the country would be unsurpassed in the effectiveness and the value of its service. Such a course should be supplemented by travel, and residence at a university for special graduate and research work. Such would be a normal college, and would furnish all that is needed for the education and training of secondary teachers, excepting advanced specializing and that necessary view of the world which comes through travel and contact with men and things. In its

proper place will be shown what some of the normal schools are doing in response to this demand for preparing secondary teachers.

The different classes of organization deserving consideration that at present contribute to the preparation of secondary teachers are (1) teachers' colleges (or equivalent) organized co-ordinate with other colleges at a university; (2) departments of or courses in education at universities; (3) colleges, in the true and proper sense of that word, that have a department or courses in education; (4) normal colleges that offer full collegiate academic courses, included with and in addition to which adequate provision is made for the professional education of secondary teachers; (5) normal schools that offer special courses and advanced electives to help meet the crying demand for more and better-trained high-school teachers. We shall now examine the content and scope of provision made by these several classes of school and organization.

(1) *Teachers' colleges, or their equivalent, at universities.*—Of these there are now four; namely, Teachers College at Columbia University, The School of Education at the University of Chicago, Teachers College at the University of Missouri, and the College (?) of Education at the University of Texas. The oldest of these and the one thus far best developed is Teachers College at Columbia. It is rising into great meaning and dignity as a national factor in the education and training of teachers. All the teachers' colleges will no doubt take pretty much the same trend in scope and character of work; so it will suffice to indicate the provisions at Columbia for preparing secondary teachers.

The courses may be divided into two main groups; (1) general professional courses, and (2) special professional courses. The first group includes, in the main, all that body of knowledge that every teacher needs, whether he teaches in the university, the normal school, high school, or the elementary grades. The second group includes a knowledge of the subject-matter and the method of the subjects that make up the high-school courses. The following may not include all that is offered for secondary teachers at Columbia, but it will be enough to show scope and character. I cite from Teachers College Announcement:

I. General professional subjects.

History and principles of education.—The aim of this course is to present the essential features of educational thought and practice of the past as

a basis for the more detailed historic, philosophic, and methodic study of the principles of education as formulated in the present.

Modern educational theory.

Practicum in philosophy of education.—The purpose of this course is a somewhat detailed examination of the fundamental principles—philosophical, historical, and psychological—which underlie a scientific theory of education, considered as a human institution. The processes and the problems of education are examined from the standpoint of the history of civilization and the doctrine of evolution, and an attempt is made to formulate a philosophical basis for educational doctrine and practice.

School administration (organization and management).

Educational psychology.—This presents the general principles that control successful teaching so far as they can be derived from psychological laws and from the study of school practice. It prepares students for general classroom work and for courses in the methods of teaching the separate subjects. The work in the sections is specialized to meet the particular needs of the several classes of students.

Child-study.—This course is designed to present the facts, so far as they have been scientifically determined, concerning the nature and development of the mind during childhood and adolescence, with special reference to the meaning of these facts to the teacher.

II. Special professional subjects.

Secondary education.—This course will consider the aims and the subject-matter of secondary education, the systems of instruction prevalent in American and in European secondary schools, the arrangement and adjustment of the curriculum; it will dwell on the general questions of sequence and choice of subjects, on equipment of the secondary school, on its relations to the elementary school and the college. Students will be expected to study the organization and management of the various types of secondary schools in New York and vicinity (the Horace Mann High School, the public high schools, and typical private schools).

Practicum. The secondary-school curriculum.—Students are required to undertake the study of special problems in secondary-school work, to investigate the conditions underlying various types of schools in this country and abroad, and the effect of these conditions on the curriculum; special attention is directed to the needs of the public high schools.

Seminar in secondary education.

Theory and practice of teaching biology in secondary schools.—The work embraces a study of the aims, materials, and methods involved in the teaching of botany and zoölogy in the secondary school, and is accompanied by practical work consisting of critical observation of the work as carried on in the Horace Mann School.

Practicum in botany and zoölogy.—A critical study of materials and methods employed in the teaching of botany and zoölogy. . . . This course is designed for intending teachers in secondary schools and colleges, and for those preparing themselves for supervision.

Theory and practice of teaching Greek in secondary schools.—In all the work the needs of the teacher in the secondary school will be kept steadily in view.

[The courses in the theory and practice of teaching secondary-school subjects include, in addition to the above, English, history, mathematics, art, domestic art, manual training, Latin, German, French, geography, physics, and chemistry.]

Three years' college work in the subject is the minimum academic standard for admission to a method course.

The same amount of practice-teaching and observation is required of prospective high-school teachers as for those looking to elementary work.

Practical work consists of observation, assistance, and class instruction in the Teachers College schools. Observation includes systematic study of the selection and arrangement of materials for a series of lessons designed for a particular class, a consideration of various methods of presentation, observing the presentation of the several lessons, or series of lessons, by the regular teacher, and rendering a critical summary of the results obtained. Practice in teaching is given first in the instruction of individual pupils, or small groups of pupils, who may be in need of special assistance, and later in the regular instruction of an entire class or grade. The minimum number of hours which must be devoted to practical work is indicated in connection with the several courses. All students are required to do the full amount of practical work prescribed for any course; advancement from observation to assistance, and from assistance to class teaching, depends entirely upon the candidate's ability to do the work required.

Dean Locke, of the School of Education at the University of Chicago, Dean A. R. Hill, of Teachers College at the University of Missouri, and Professor Sutton, of the College (?) of Education at the University of Texas, all report solid improvement and gratifying prospects. The School of Education at Chicago has taken about the same form and scope as her sister at Columbia.

(2) *Departments of education at universities.*—The most of the universities have their pedagogical work organized as a "department of education." Quite a number do not give the professional preparation of teachers enough attention to warrant an independent and distinctive designation of that work, though a few that have not

yet organized their pedagogical courses into a "department" at doing work on a par with those universities that have the work so organized. The courses of any one of several universities could be cited to represent this class of provision for preparing secondary teachers. For convenience I let the courses offered at Brown University represent this class. The data are taken from the catalogue.

History of educational theories and institutions.

A critical study of modern education.

The fundamental principles of education.

Seminary in educational problems.

The psychology of education.—The principles of psychology applied to method in education and instruction.

The hygiene of education.—The hygiene of growth. Play and fatigue. Sight and hearing. School diseases. School architecture. Warming, ventilating, and lighting. Sanitation. School furniture. School programs.

Practical introduction to teaching.—Organization of school systems. Management and discipline of classes. Observation of good teaching. Practical applications in method.

Methods in secondary-school studies and the organization, equipment, and management of secondary schools.—Required of student-teachers. Elective for graduates and experienced teachers. Each term may be elected separately. Importance and meaning of secondary-school studies and their organization into a curriculum; method as applied to each subject and the resources at the command of the teacher; such a view of the work of the school as is necessary to the teacher in order that he may understand the whole and co-ordinate his work with the whole. The following studies receive especial attention: first term, Latin and modern languages; second term, history and English; third term, science and mathematics.

Training in practical teaching (through the year).—Practice-teaching. Control and conduct of classes, plans for single lessons, and for "method-wholes," observation of the work of experienced teachers, reports, private conferences. Opportunity for practice-teaching in the high schools of the city is given to capable graduate students, and in the grammar schools to a limited number of seniors preparing to teach in the grades or to fill places as principals or superintendents.

By special arrangement with the School Committee of the City of Providence, student-teachers are appointed to places in the Providence high schools. Appointments are made from members of the Senior class who have pursued undergraduate courses in Education. These student-teachers are of two types. Those of the first type — of whom there are at least six (three of each sex) — under the guidance and direction of experienced teachers, have the control and conduct of classes. The time required each day is somewhat more than half

the usual school session. They receive a salary of four hundred dollars a year from the city. Those of the second type are occupied in a similar way from three to five hours a week. They receive no remuneration from the city. An unusual opportunity is thus afforded student-teachers to gain a thorough knowledge of the theory of education and at the same time practical experience in the art of teaching. In making appointments to places as teachers of the lowest grade in the Providence High School preference is given to those who have successfully accomplished the course as student-teachers. In this respect student-teachers of the second type have the same status before the committee that makes appointments as those of the first type.

(3) *Colleges that have courses or a department for preparing secondary teachers.*—A small proportion of the colleges give any considerable serious attention to the professional preparation of secondary teachers; but some are doing valuable work in both scope and character. The courses offered at Cornell College, Mount Vernon, Iowa, are here used to represent the best of this class.

Recent endowments for both the department of Education and that of Psychology have made possible most excellent library facilities in these fields. The leading works in English in both lines are now in the library, and additions are constantly made.

In addition to the courses outlined below, a year's course of elementary studies in Education is offered in connection with the work in the academy.

Graduates of the college who complete two or more years of work in Education receive special recognition and indorsement by being granted a professional diploma in Education. The following courses are offered:

School organization and management.

Psychology and teaching.

History of education.

Genetic psychology.—A systematic course in theories of mental development and of the psychological basis of educational theory. The psychology of adolescence will receive special attention, and this will be followed by a topical survey of recent literature on educational psychology.

Secondary education.—The history of the development of the American high school. Its purpose, organization and relation to the community; construction of courses of study; various problems peculiar to the high school.

Principles of education.—The meaning of education, its significance to the individual and to society. The relation to the two chief factors in the educational process—the subject-matter and the child. The function of the teacher and the school. The basis of method and its relation to teaching. A study of the child as an educable being.

The high school: educational practice.—This course seeks to organize the results gained in the previous courses and to make application of edu-

tional principles particularly to high-school work. The foundations of method, and methods of teaching the various branches in secondary schools, are the principal lines of study. An opportunity will be given to pursue topics of study having in view the fitting of the student for some particular line of school work.

(4) *State normal colleges.*—In name or in fact this class of school is represented in nine different states; namely, Alabama, Colorado, Iowa, Michigan, Missouri, Montana, New York, Oklahoma, and Tennessee. They vary in their constitution, and in this discussion reference is had only to those that offer what is designed as the equivalent of a collegiate academic course, conferring degrees. This type of normal school has arisen in response to the demand for a school that will provide professional training for teaching and at the same time furnish ample means for liberal education. There are valid reasons for thinking that these schools will be able to render efficient service in preparing for secondary teaching. Whether they do this will be determined by several factors, the most determining of which is the course of study. I say this because the course of study will to a large degree determine the standard of the teaching force employed.

We shall now examine one of the courses offered at one of the best of these schools to see its scope and content, and judge how well it is adapted to meet the requirements, both academic and professional, of preparing teachers for secondary schools. If this course is not representative it is because it is of a higher standard than the average offered by this class of school. I cite the course leading to the A.B. degree in Education at the State Normal School of Iowa, quoting portions of the catalogue that have an explanatory bearing.

Bachelor of Arts in Education.—A four-year course of study beyond the preparation granted by secondary schools. The requirements for graduation are equivalent to university courses. Preparation for teaching in high schools, for administration in principalships and superintendencies demands much more than scholarship; as a knowledge of teaching should be also attained and that knowledge should be both theoretical and practical. It is not enough to be a scholar or to have studied the theories of education in class work; there should also be training in the expert elements that constitute the instructor, the supervisor and the executive. . . . To meet the needs of a growing class of students who are fitted by nature and by scholarship for high-school teaching and for executive duties, the following conditions are made for those who desire to be candidates for the degree Bachelor of Arts in

Education. This is not a new movement at the Normal School because the Board of Trustees at the organization of the work in 1876 adopted this degree, this standard of graduation, and this kind of course of study for teachers. For the first time the plan is outlined, as the needs and requirements of the present time dictate.

For unconditional admission to the first year of the course, the applicant must present credentials from secondary schools certifying to fifteen years of work selected from the following lines of study:

I. English (1) Composition and Rhetoric.....	one year
(2) Literature	one year
II. Mathematics (1) Algebra and Plane Geometry.....	three years
(2) Solid Geometry and Trigonometry.....	one year
III. Science (1) Physics.....	one year
(2) Chemistry	one year
(3) Zoölogy	one year
(4) Botany and Physiography.....	one year
IV. Latin (1) Lessons, Readings and Cæsar.....	two years
(2) Cicero and Vergil.....	two years
V. German (1) Lessons, Readings.....	one year
(2) Minna von Barnhelm, William Tell.....	one year
VI. Foreign Languages. Greek and French will also be given credit if presented as preparatory work.....	each two years
VII. History and Civics (1) General and special.....	two years
(2) Civil Government and Economics	one year
VIII. Since this is a teachers' school, special requirements in music, drawing, or in other branches not here listed will be given allowance for special courses where such work is essential.	

[These entrance requirements are based upon the standards indorsed and accepted by the College Department of the Iowa State Teachers' Association.]

The degree Bachelor of Arts in Education will be conferred when the candidate has secured forty-eight term-credits, the meaning of term-credit being twelve weeks' work of five lessons a week.

Academic studies.—[Thirty-six of these credits are academic, and twelve professional. Three credits in English, and three in mathematics are "required constants;" the remaining thirty of the academic studies are elected. Two years of literary-society work, and two years of physical training are required without credit. The elective studies must be taken from the following groups: English, mathematics, history and civics, science, Latin, German, physical training, public speaking, and vocal music. Excluding the last two, the groups offer from six to eleven courses each.]

Professional studies.—The assignment in these lines consists of twelve

term-credits to be assigned from psychology, methods of instruction of various kinds, school management and supervision, history of education, philosophy of education, American education, modern education, and specific work in the training department. Teaching classes, inspecting classes at work, supervising the work of teachers, criticism of work being done constructively and helpfully, details of executive business, etc., will all receive attention as the individual scope of the student's future plans will permit. This field of study will in each individual case be planned by the faculty and definitely outlined when the plan and the course to be elected is known. Such an arrangement allows proper differentiation and recognizes the individual capabilities of those in preparation for high grades of professional teaching.

In addition to the above other advanced courses are offered leading to the Bachelor's degree in Didactics, and the Master's degree in Didactics.

Two large, and one might say precious, interests are involved in this movement toward state normal colleges; first, the better education of the people through well-prepared teachers; and second, the ideals and respectability of American scholarship. These normal colleges have placed themselves under responsibility to both these interests, and to justify their existence and establish their acceptability they must acquit themselves with creditable efficiency.

(5) *State normal schools that offer advanced courses and electives for preparing high-school teachers.*—As in the case of the normal colleges, most of the colleges proper, and many of the universities, this group of normal schools gives the same general professional courses to all students whether they are intending to teach in elementary or in high-school grades. The specific preparation offered is found in advanced academic subjects (chiefly electives), and method of the high-school studies. At some of these schools an optional system is in vogue, whereby a student may substitute advanced high-school subjects for studies in the regular course. Judging from the returns, there are many normal schools that are doing considerable along this line. The practice department of these schools gives the prospective high-school teacher experience in the grammar grades, and sometimes in the high school.

It will be well to let some of these schools speak for themselves.

ALBERT SALISBURY, State Normal School, Whitewater, Wis.—The normal schools of Wisconsin do not have any course of study especially designed for those intending to teach in high schools. . . . Many of our graduates do

teach in high schools; some of them are principals of high schools and city superintendents. . . . We encourage persons looking toward high-school work to do postgraduate work; and many of them continue from half a year to a year, taking culture studies, for the most part, that were not included in their particular course.

One thing more ought to be added. Graduates from our advanced course are admitted to junior rank in our State University, which provides a course for normal graduates known as the Philosophical Course. Many graduates of our Wisconsin normal schools pass on to the university. We consider this to furnish an ideal course for high-school teachers. . . . People who have taken this course, graduating first from the normal school and then from the university, are much in demand in this state for high-school positions.

J. M. GREEN, New Jersey Normal School.—Only those who are graduates of four-year high-school courses before coming to us could think of becoming teachers in high schools. For them there is a two-year course of twenty-four units, twenty of which are required and four elective, and an elective year in which they may confine their time to six units, three at a time. A person taking this course would be capable of teaching in a high school the subjects in which she has specialized, quite as well, I think, as a graduate of an ordinary college course, so far as her knowledge of subject-matter is concerned, and better so far as her knowledge of method is concerned. I think there are about ten or twelve taking this course all the time.

DAVID FELMLEY, Illinois State Normal University.—One-fourth of the entire school expect to become high-school teachers.

Thus far we have considered the magnitude of the annual demand for secondary teachers, and the extremely inadequate supply of specially-prepared persons to meet that demand. We have also examined the character and scope of the provision made by our universities, colleges, and normal schools for preparing secondary teachers. Of the points that yet remain, I shall touch but three.

Practice-teaching.—There is great difference of opinion as to the amount of practice-teaching that is necessary for prospective high-school teachers. The following responses to point III in the questionnaire will show the trend of thought:

DAVID S. JORDAN, Leland Stanford University.—There is no amount of observation and practice under criticism now required for this particular [state] certificate. It is proposed soon to require a certain amount of this in addition to college graduation, not as a part of it.

G. W. A. LUCKEY, University of Nebraska.—[Professor Luckey discusses this in his *Professional Training of Secondary Teachers*, pp. 207-13.]

DAVID R. MAJOR, Ohio State University.—Unfortunately our students have no opportunity for either observation or practice.

J. R. STREET, Syracuse University.—No. College men and women do not need such minute drill as younger students.

W. S. SUTTON, University of Texas.—Up to this time no provision has been made for this very necessary work. It is hoped that a vigorous beginning will be made in the fall of 1905.

CHARLES DE GARMO, Cornell University.—Impossible to finance a secondary school for observation alone. Practice is out of the question.

FREDERICK E. BOLTON, State University of Iowa.—As yet we have no practice school. I hope that at some time we shall have a practice school or at least a model school where our teachers can have opportunity for observation and some practice. I do not believe it is necessary to have practice too extended. I think that many of our normal schools entirely overdo the matter of amount of practice. . . . The universities have been at fault . . . in that they have [had] no model schools or practice-schools. I think the education of the teacher is not complete without opportunity to work in such a school.

To what extent do courses for secondary teachers coincide with those for elementary teachers?—The returns show that much of the work done in the training of secondary teachers in universities and colleges coincides with that done for elementary teachers. The advantages and objections to this ought to be brought out clearly.

How can universities and normal schools more effectively meet the demand for better educated and trained secondary teachers?—That it is an imperative necessity to have more and better-prepared high-school teachers has been demonstrated. How improvement and extension of provision made can be brought about is an unanswered question. Some of the responses to this question are significant.

G. W. A. LUCKEY.—By mutual assistance, division of labor, and a more thorough study of the problem. (See pp. 228 ff. of his *Training of Secondary Teachers*.)

GEORGE H. LOCKE, University of Chicago.—I believe it is the function of the departments of education with school laboratories attached. I cannot believe in the training of secondary-school teachers away from a university.

DAVID FELMLEY, Illinois State Normal University.—The normal schools by furnishing (1) strong courses in the high-school branches, including discussion of the method of instruction; (2) courses in psychology and general method; (3) advanced courses to be obtained at the university.

HOMER H. SEERLEY, State Normal School, Cedar Falls, Iowa.—There is more to do than all [universities and normal schools] can accomplish in this field. Let the fit survive. Have respect for one another.

CHARLES DE GARMO, Cornell University.—Normal schools cannot do this work without extending their courses until they cover the work of the university.

E. M. SHACKELFORD, State Normal College, Troy, Ala.—This is a hard problem to solve. If we raise the requirement for admission, we can make the few who would graduate more efficient; but in doing so we cut out of these schools entirely a great many who are now trying to teach and who should be induced to attend for better preparation.

JOHN W. COOK, State Normal School, De Kalb, Ill.—(1) By having a high-school department for observation and training purposes. (2) By the organization of professional courses which shall be closely correlated with the work of such a training school.

C. C. VAN LIEW, State Normal School, Chico, Calif.—By having both supply experience (i. e., practice) courses to the amount of fully one-half of the professional work. Possibly by letting each, in lieu of something better, exchange those lines of work each can best furnish; i. e., the normal school, experience in teaching; the university or college, culture.

G. STANLEY HALL, Clark University.—In order to meet the need for better secondary teachers I think our universities and colleges must first appoint better men as professors of pedagogy and give them more liberty. Many who hold these chairs now are without any special qualifications except having taught. They do not read French or German and have little knowledge of philosophy or psychology, which topics are the Blackstone of pedagogy. Many of them, again, are inherently good men who would develop well if they had a chance; but they are obliged to work under the following handicaps: first, some must give much of their time to colporteur work among the secondary schools, examining them, and placing college graduates as teachers and corralling in students for the next freshman class. Half their time at least they must be drummers for the college.

The second handicap is they are not allowed enough academic freedom. For instance, they can talk about lower grades of education but they must stop short when they come to the university or the professional school. If they discuss these they interfere with the traditional rights of the President. Thus, being condemned to the lower grades only, their mental horizon is narrow, their course robbed of much of its dignity, and a fence, purely arbitrary, is run through the middle of their work.

Many of our academic professors of education have consciously or unconsciously, directly or indirectly, in view nothing whatever except more students for the college they serve, and this makes them interested in nothing but high-school work. They know or care little about the grammar schools, or still less the kindergarten, and they and the college textbook-makers have laid a heavy burden upon secondary education which they have tried to rob of its due

freedom and have made their work so distasteful that there is a silent but growing prejudice against their work.

Then, again, the fact that many normal schools have undertaken to train secondary teachers with faculties or other facilities that are inadequate to its purpose is another [handicap].

W. S. DEARMONT, State Normal College, Cape Girardeau, Mo.—The three state normal schools of Missouri decided two years ago to offer full college courses for the purpose of preparing teachers for the secondary schools. It is our purpose to make the normal schools of Missouri, teachers' colleges. I mean by that term that we are offering in addition to thorough pedagogical training, strong academic courses equal in every way to the undergraduate courses of the best colleges and universities. . . . It is our intention to make the college course the course that teachers who are preparing for secondary work will take in the normal schools; . . . and to have a high-school department of our training school for the purpose of affording an opportunity of observing and teaching in secondary work.

We believe that we shall not only be able to give teachers the academic training that is required for secondary work but thorough pedagogical training for the same work, also. I believe that the plan that has been adopted by the Missouri state normal schools is well calculated to do much toward solving the problem of better training of teachers for secondary work. We believe that our plan will result in college men giving more attention to elementary and secondary education than this class of men now give.

In summing up the opinions under the last question of the blank I find it easy to group the suggestions under quite definite headings, the chief of which are given herewith, each followed by the number of opinions that coincide on that point. The explicit statements only are recorded.

- (1) By requiring higher standards of general scholarship and cultivation, 31.
- (2) Courses especially designed for secondary teachers, including both subject-matter and the method of high-school subjects—more of these and longer in both universities and normal schools, 58.
- (3) By better provision for observation and practice especially adapted to the needs of high-school teachers, 21.
- (4) By professional courses for college graduates, especially designed to prepare secondary teachers, 35.
- (5) By establishing and maintaining higher standards of professional preparation, especially through state and municipal legislation, 14.

(6) By having better teachers who do this work in universities, colleges, and normal schools, 10. (This was evidently meant to cover, in most cases at any rate, scholarship, character and personal traits, and skill.)

(7) By devising a more rational and satisfactory way of selecting and certificating these teachers, 5. (Some mentioned the great need of more carefully selecting young people peculiarly adapted personally to high-school work, and inducing them to enter the high-school field.)

(8) By a more effective exclusion and elimination of the unfit, 3.

(9) By making the science and art of teaching more a problem of dealing with individual lives than with subject-matter, 4.

(10) By having normal graduates take university courses, 3.

(11) By more careful study of high schools — what they mean, are doing, and what they need, 5.

(12) By improving the economic status of teachers — better salaries, longer term of service, promotion on merit, 5.

(13) By a more generous support of normal schools by the state, 2.

(14) By more and better summer schools for teachers, 2.

(15) By securing teachers with good athletic training, who can understand the physical needs of youth, and make sports yield their true and legitimate values.

(16) By establishing state normal colleges which shall furnish both cultural education and professional training, 6. (These schools are starting up with the zeal of a "calling," and the confidence of certainty that they are greatly needed.)

Conclusion.—In closing this partial presentation of provision made for, and opinion concerning, the preparation of secondary teachers one will hardly venture to make many comments, either critical or prophetic. Yet a few things are clear:

(1) That our middle schools have been called into being to serve a great and legitimate purpose in the evolution of democratic life and institutions. They are the meeting and unifying ground for rich and poor, high and low, Greek and barbarian. Our national life in its higher aspects of character and social service must be continually renewed by discovering and drawing up into itself through the high school those individuals that have natural capacity, talent,

or aspiration for the higher life of personal worth and service. Thus viewed, what a noble conception is embodied in our high-school system! And who can measure the splendid opportunity presented to those who are responsible for making the high school perform its full function?

(2) That the opinion of representative men in the high-school field itself is practically unanimous as to what constitutes the ideal secondary teacher.

(3) That the status and personnel of the present high-school teaching force is far from what it must be in order to give these schools their maximum of efficiency.

(4) That the present provision for the education and training of secondary teachers is entirely inadequate in extent, and in most schools that attempt preparation of secondary teachers, not very satisfactory in character. Some of the universities, colleges, and normal schools are making progress in the effective solution of this problem; but all these schools together supply only a small fraction of the teachers that newly enter the high-school work each year. Nor could they do much more if the demand were made upon them; because few of them are adequately provided with plant, equipment, and teaching force. But it is safe to say that no great demand will come until standards of preparation are advanced by legal act.

(5) That it is an entirely unsettled question as to what schools can now, and will hereafter best prepare for secondary teaching; and that at present all the help of all the schools that can do the work at all respectably is needed; that normal colleges appear to be a necessity in this field.

But the relative advantages and limitations of universities and normal schools in preparing secondary teachers is presented by a symposium of opinion in the final chapter of this book.

V

RELATIVE ADVANTAGES AND LIMITATIONS OF UNIVERSITIES AND NORMAL SCHOOLS IN PREPARING SECONDARY TEACHERS

LIVINGSTON C. LORD, President State Normal School, Charleston, Ill.

G. STANLEY HALL, President Clark University, Worcester, Mass.

HOMER H. SEERLEY, President State Normal School, Cedar Falls, Ia.

CHARLES DEGARMO, Professor of Education, Cornell University, Ithaca, N. Y.

C. C. VAN LIEW, President State Normal School, Chico, Calif.

EDMUND J. JAMES, President University of Illinois, Champaign, Ill.

J. N. WILKINSON, President Kansas State Normal School, Emporia, Kan.

M. V. O'SHEA, Professor of Education, University of Wisconsin, Madison, Wis.

L. H. JONES, President Michigan State Normal College, Ypsilanti, Mich.

CHARLES B. GILBERT, Many years' experience as superintendent of schools in large cities.

Some essential questions and theses logically arising out of this division of the study:

1. Opinion is now practically unanimous that the vital relation of the high schools to the welfare of the people demands teachers especially fitted and prepared for teaching youth.
 2. What constitutes the best course of education and training for high-school teachers?
 3. In what schools can these courses be most effectively offered?
 4. Should not the National Society select a strong, representative committee to study question 2 and formulate the results of such study for printing in the Yearbook?
-

LIVINGSTON C. LORD

President Eastern Illinois State Normal School, Charleston, Illinois

The time has now come when the training of teachers for secondary schools should receive serious attention. Whether this work should be done in schools especially established for the purpose, or in schools connected with our universities, or in some of the state normal schools, is an open question. Each plan has its disadvantages, and there are strong arguments in favor of each.

The thing, however, which is of cardinal importance is that

teachers of high ability and special fitness be assigned to this work. Teachers who attempt to train secondary teachers must be of the highest character both in scholarship and in teaching skill; something more than lecturers or compilers of statistics; in scholarship, broad and in some things really fine; in teaching skill, sound not only in theory but also in practice; in thinking, not too ready to believe that every educational principle has been discovered and that every teaching act can be referred to such principle.

Finally, two conditions are to be avoided, each of which is worse than the other. First, the point of view of those of limited attainment, with alert but not profound minds, who, while helpful to those who expect to teach in primary schools, would not be respected by teachers preparing for high-school work; second, the point of view of the teacher of pedagogy with pretentious phraseology who discusses what he is pleased to call the pedagogy of a subject of which he knows little.

G. STANLEY HALL
President Clark University, Worcester, Mass.

I think preparation of secondary teachers should never be permitted in a normal school where primary teachers are trained, but should be entirely given over to the university. This is essentially the case in Germany, although terms and definitions vary a good deal. I think there is very little in common either in methods or matter in the curriculum proper for these classes of teachers. I have so often expressed my opinion more fully with the grounds therefor that I will not enlarge here.

HOMER H. SEERLEY
President State Normal School, Cedar Falls, Iowa

The education and training of teachers.—The preparing of teachers for their careers is a business which demands more than an opportunity to attend a good school and acquire a good grade of scholarship. Teaching public school is a profession of a high grade if the work is properly understood, as it involves the conduct of affairs of the most expert character. The right preparation of a teacher involves a knowledge of the philosophy, the theory and the practice of education in addition to the scholastic knowledge universally conceded. There is the necessity to acquire a right attitude, a true spirit

and the power of efficient instruction to be a teacher of importance and worth. Secondary education is not free from these necessary conditions as those who instruct in its field need just as much care and supervision in their right training, if they are to be superior in power and skilful in service, as is required of elementary teachers.

The university and secondary education.—The university idea of education does not necessarily require such a standard of attainment and professional excellence, nor does the university give such advantages and such courses of study; for it assumes that all secondary education has ended when the student enters college studies and devotes himself to higher education. It is also assumed by university management that when advanced courses have been completed in the college classes such person is specially well qualified for the profession of teaching in secondary schools. This assumption is far from the truth as there is not necessarily any such assurance of expert attainment and capability when the college graduation has been reached.

The normal school and secondary education.—The normal-school idea is variable because there is at present no uniformity of plan or effort; but as a rule the normal school proceeds on the theory that all training in secondary studies is not completed on graduation from a secondary school, and that there are advanced courses for teachers in the branches of study assigned to the curriculum of the secondary school that ought to be taken by all would-be teachers in said schools. The special function of the normal school is to give the right spirit, the correct attitude and the needed initiative to teachers in all the grades of the public schools and by a proper extension of the present program of studies, normal schools can give superior training and education for all kinds of secondary teachers and not go outside of their true and proper province. A rightly organized and equipped normal school must have more elaborate and extended opportunities as to apparatus and library for individual work and training than may be necessary for a college or a university, because the preparation of teachers involves more explicit study and accomplishment than the general courses that are given to students who are in preparation for law, medicine, and other special professions. The province of the normal school is to train kindergartners, primary teachers, elementary teachers, music teachers, art teachers, manual-training teachers, domestic-science teachers, physical directors, and

all other kinds of teachers that are needed for public schools of all grades, not excluding even those of the secondary school. It is also fitted in spirit and in tradition to do this work better than the university or the college because such institutions are not offering the courses and are not by tradition disposed to give the kind of opportunities that practical and expert public-school teachers positively need along the lines that the service expects and requires.

The demand to recognize a reasonable differentiation.—It must also be recognized that there is a necessary differentiation in educational training for the teaching career. There are innate differences between kindergartners, primary teachers, elementary teachers, and secondary teachers that are not obliterated by courses of study and scholarship. The secondary teacher is not such because he has had a more extended scholastic preparation. There is such a thing as individual fitness for becoming a primary teacher, and there is just as much individual fitness of another kind necessary for the secondary teacher. It is the individual fitness that is the first requisite and this can be found out by the person alone who is being prepared for a career. It is not possible to develop a primary teacher out of any woman who should undertake the study and the training deemed essential, nor is it possible to develop a secondary teacher out of anyone by submitting such person to the plans and the demands of a different course of education. Teaching is not a question of degree but of kind and the students must be differentiated as to promise as to kind, rather than as to degree of scholarship attained. Students who enter normal schools can almost all of them be trained for some kind of effective work as teachers, but they cannot all be made at the will of the management into primary teachers, or elementary teachers, or secondary teachers. The special type of mind, personality, and adaptability that an individual possesses decides the question of a career and these characteristics are not known before they enter school, for their training and education test their capabilities and decide their limitations. It is fair to every teacher being educated for such a career that he become what he can do best and most comfortably, so that his future has its largest possibilities. It is likewise true that a university education does not change a real primary teacher into a superior worker in secondary schools, for scholastic requirements do not create gifts or capability.

The limitations in the preparing of secondary teachers.—The

limitations that are thus found in the experience of preparing secondary teachers are due to the tendencies and the purposes that are existing today in the organization of the university and the normal school: the former being assumed to be an educational institution for general culture, and the latter, as commonly organized and conducted, a technical school of small expectations, meager courses, limited equipment with no province to give opportunity for culture and scholarship. The normal school that has opportunities for advanced scholarship and broad courses does not for that reason become either a university or college as its organization, spirit, and management is totally different, making it just as efficient in preparing secondary teachers as it could make it in preparing primary teachers. The viewpoint of the normal school, its manner of conduct, its aim of instruction, and its results in training are such that it can never become either a university or a college and has little in common with them as educational institutions. These differences are pronounced, and they only need fair investigation to establish the fact of their existence.

The normal school as a public educational institution had its origin through legislative enactment, and has always emphasized the importance and the necessity of special instruction in the history, theory, and principles of teaching and of actual training through personal teaching under expert supervision, as the essential characteristics of a proper preparation for a successful teaching career. While this contention has not been cordially accepted by the university, it is to be recognized that as time has passed the merit and practicality of these ideas and principles have gained such headway that the universities have been compelled to establish chairs of education in the endeavor to meet public demand, and in some cases even have gone further and organized affiliated schools which are called "schools of education," "teachers' colleges," "normal colleges," etc.

Until the normal school had won its place and had attained the recognition of public esteem, it never occurred to any of the higher educational institutions that such work was either desirable or necessary. The particular objection that may be offered to this change of policy by the university is that it usually claims superiority over the normal school in this particular line of teaching, even when its requirements, standards, and courses are only equivalents to the normal schools, thus loaning its prestige and power as a higher institution to give rank to its graduates above their actual acquirements and

merits. All that the normal school has a right to ask is, (1) to be let alone in its endeavor to do its particular kind of work, and (2) if the universities duplicate its province, that they may be willing to call things by the right names and not assume that such work has become university work in reality by being under the direction of such a type of educational institution.

The example of increased opportunities.—To give a practical explanation, in conclusion, the record of the Iowa State Normal School is cited, not because its scheme of work is ideal nor its plans perfected, but because its organization permits the training of all classes and kinds of public-school teachers. This condition has existed for only a few years and yet its graduates have already taken an active part in the work of secondary education. It is true that they are among the more successful teachers, and that their influence upon the spirit and the tendencies of education is unequaled by any equivalent number of teachers who have received their training in other kinds of educational institutions. The following table will show what is now the work in secondary education of such graduates. For complete information the following will be the order: Column I will give the kind of work done; Column II the total number of normal-school graduates in such work; Column III the number of these graduates who have also graduated afterward from colleges or universities; and Column IV the number who have received all their preparation in the normal school.

High-school principals	-	-	-	26	7	19
City superintendents	-	-	-	39	16	23
Department teachers	-	-	-	76	18	58
Village principals	-	-	-	98	7	91
Assistant principals	-	-	-	50		50

The importance of training.—There is much value to real training in actual teaching even in preparing to be secondary teachers, a training which marks a graduate as a specialist in public-school work. The normal school requires this as a part of its assigned work and declines to accept an equivalent, therefore giving a technical education that has absolute value and strength in its serviceableness. Actual teaching under sympathetic yet expert and critical supervision gives a spirit, a mastery, and a status of broadminded effectiveness that are essentials in an educator. These are facts, not fancies; they are

truths, not fictions; and if these things are to be possible in universities or colleges they must become in these respects normal schools in reality, though they may be known by more exalted names.

CHARLES DEGARMO

Professor of the Science and Art of Education, Cornell University

A fundamental distinction between normal schools and universities in their relation to preparing secondary teachers.—The most obvious distinction between the normal school and the university as a training-ground for secondary teachers is that the normal school is obliged by its conditions, its primary aims, and its traditions, to devote its chief energies to the preparation of elementary teachers. Only in a large and general way can it devote more than a fraction of its attention to the training of teachers for secondary schools. The education department of the university, on the other hand, turns naturally to secondary education in its efforts to train teachers, for barely one in a hundred of its students expects to become a grade teacher. It is true that a number of young men expect ultimately to be superintendents, and thus desire familiarity with the problems and methods of elementary education. But even here, the demand is not so much for the details which the normal school emphasizes, as for the larger philosophical view that takes in the whole system of public education, and that furnish comparative estimates of the educational conditions, systems, and results of all civilized countries.

This fundamental difference of aim, arising from the fact that in the main the normal school prepares teachers for elementary, and the universities for secondary schools, is reflected throughout the two classes of institutions. A few of these differences will now be pointed out.

Comparison as to scholarship.—In scholarship the university student selects fewer studies and pursues them longer by more intensive methods than is practicable in the normal school; thus preparing himself more thoroughly for the departmental work of the high school. We must rid ourselves of the idea that difference means inferiority. It is simply difference. In the normal school scholarship is in the nature of the case more general, less intensive in character, and less exhaustive than in the university. This is no reproach, for the normal school necessarily looks at education from the standpoint of the pre-adolescent period and childhood. In my opinion, the

normal school and the university should not tend to approach nearer to common scope, intensity, method, and aim of scholarship, but on the contrary should tend still further to differentiate. The college ideal of scholarship, so longed for in some normal schools, is not the best ideal for these institutions, because the professional aim of the normal school is so different from that of the university.

Indirect professional training.—Closely related to the matter of scholarship is the indirect training in methods given in the two classes of institutions. The university student, concentrating his attention upon a few subjects for a long period of time and by more intensive methods, comes to have a more extended view of the teaching possibilities of his specialty than can the normal-school student, who has not specialized at all. In science, for instance, the man who has become an expert in handling all kinds of apparatus and performing every variety of experiment is better prepared for laboratory work in the high school than one to whom a science is an incident. The same is true of language, history, or economics. A library with a quarter of a million books is a better preparing place than one with five thousand. The rich collections of photographs, lantern slides, and illustrative materials are also important indirect aids to high-school teaching.

Direct professional training.—Coming to the matter of direct professional training, we find important differences, not always wholly in favor of the university as a place for training secondary teachers. The general theory of education can be adequately taught in the normal school, except perhaps for time limitations and the lack of extended study of contributory departments of knowledge. The best preparation for the theory of education is extended study in two directions; namely, the mental sciences, like logic, psychology, ethics, and the history of philosophy; and the social sciences like history, economics, and political science. The direct professional work in the university coming mostly in the junior and senior years, to say nothing of graduate students, offers, of course, a much better chance of such preparation than does the normal school, where such subjects can be but lightly touched, even if they are taught at all. Furthermore, the university naturally lays the chief stress in educational theory upon the adolescent period of mind, and the studies and methods of the secondary school. In this it differs essentially from the normal school whose heart is in another place.

History of education particularly considered.—A similar difference in emphasis is found in the history of education. Here the normal school naturally devotes the brief time it can spare for the subject to the unfolding of elementary education. This is right and proper. But the university has more time, and has perhaps more need of a philosophical and institutional view of the subject as a whole, and it certainly lays more stress on those aspects most important for secondary education. For example, instead of reading three pages of a text upon the Revival of Learning, it spends weeks in following out in detail the rise and development and extension of Humanism—its rise in Italy, its spread to Germany, and its bifurcation between Protestants and Catholics; its culmination in the gymnasial system of Germany; its æsthetic and scholastic influence in France; its dominating position in English secondary and higher education; and finally its importation to this country, together with its former commanding influence, its gradual decline in recent times, and its probable future importance. Similarly the rise and development of science in modern secondary and higher education, though covering a shorter period, is an equally important phase of the history of education in the university. For such study the normal school would lack both incentive and time.

Comparison as to training in practice-teaching.—The normal school has one facility in the training of teachers that the university must for the most part do without, and that is actual practice-teaching in a model or training school. The only successful system of secondary-school practice is found, not in schools for high-school teacher-training, for such nowhere exist except here and there in name, but in actual cadet teaching in the secondary schools themselves, as in Germany and in cities in connection with a few American universities. It seems as if experience has shown that neither high-school students nor their parents will permit practice-work by candidates for teaching except in the way indicated.

It is an open question how much good it would do a high-school teacher to practice teaching in elementary classes. This would depend upon the subject, the age of the pupils, and the character of the criticisms offered. The nearer the grade of instruction approaches that of the high school, the nearer will be the approximation of matter and method to the needs of the candidates for high-school teaching.

The question of degrees.—Is it advisable for normal schools to

extend their courses and grant degrees in education? If this means the adoption of a dual end, namely preparation of both elementary and secondary teachers, its advisability is extremely questionable. If all the students of a normal school are trained for both and may choose either, they will, for two reasons, generally seek high-school positions, because these positions pay better salaries and they furnish what is deemed, by the community at least, a better social standing. If the normal school comes to fulfil the functions of a university, by that fact it ceases to have an adequate reason for existence as a normal school.

If, however, the extension of the normal-school course means a better scholarship from the standpoint of elementary education, then such extension is theoretically desirable. More knowledge of subject-matter and more extended professional training without deviation of aim would certainly conduce to better results in school and community. But essentially to change the aim and spirit of an institution is to acknowledge that it is not justifiable as it is, but that it should become something else. Since, however, elementary education will become increasingly rather than less important, it is evident that we shall always need institutions whose whole mind and heart are devoted to this end.

C. C. VAN LIEW
President State Normal School, Chico, Calif.

The advantages which the universities possess over normal schools in the preparation of secondary teachers lie unquestionably in the more liberal general culture and training which it is possible for the university to provide. In the training of secondary teachers it should not be forgotten that liberal culture will always play a chief rôle. On the other hand the difficulty with the university at present is that it cannot supply to its candidates for the work of the teacher experience in teaching; and that it is too commonly hostile to both theoretical and practical training in the arts of the teacher. The strength of the normal school lies in the fact that it is equipped to inculcate good ideas and to train good habits of teaching. The whole career of the normal schools of this country has been making for experienced candidates for the teacher's office. The weakness of the normal school, especially in the matter of training secondary teachers, lies in its inability to supply large general culture. So far as secondary teachers are concerned, at least, it ought not to try it.

Where ability to exercise a practical art is concerned, degrees are, or should be, valueless. They should be restricted merely to the position of evidences of culture. For this reason normal schools should not grant degrees.

It is too easy in this country to become a secondary teacher. The problem of training secondary teachers will not be solved until we have some regulation approaching four years of university culture work, followed by two years of professional training. This professional training might well be undertaken in the normal schools, for in general they are equipped to furnish both theoretical foundations and teaching experience.

EDMUND J. JAMES
President University of Illinois

I am decidedly of the opinion that, aside from those fundamental qualities which the secondary teacher needs in common with all other teachers, the greatest need of the secondary teacher in the United States today is scholarship. He is ignorant of the subject he is teaching. In my opinion, no man can properly present a subject to pupils of high-school age who has not pursued the subject to such an extent as to have an independent judgment on the subject that he is teaching; in other words, not unless he has mastered the subject so far as to himself be capable of original production within the field. There are very few teachers of that grade in the United States today. No one who knows my record in this matter would suspect me of underestimating for a moment the value of strict professional training in the narrow sense of the word. I have stood for professional pedagogical training for secondary teachers in our colleges and universities now for more than twenty years, and I am more in favor of it today than ever before; but I have never thought for an instant that that was in any sense a substitute for scholarly training in the subject-matter which one is teaching; and I think of the two that the lack of knowledge is a far more serious difficulty today than lack of method, serious as the latter is.

JASPER N. WILKINSON
President Kansas State Normal School, Emporia, Kansas

Universities have an advantage in preparing secondary teachers, because their students cover more completely the academic work of secondary schools. I do not think the normal schools can afford to

content themselves with anything less in the methods of the secondary schools than what the university training gives in that line. I believe the normal schools can do better work than will the university in preparing students to teach well all the subjects taken by the teacher, even though the teacher trained in the normal school may not take more of a subject as a student than is taught by him.

It seems to me wise for the normal schools to grant some such degree as Bachelor of Pedagogy when the work done is equivalent to that done in the college for Bachelor of Arts or of Science. Those degrees should, I think, indicate a preparation to teach in the secondary schools.

M. V. O'SHEA

Professor of Education, University of Wisconsin

The well-nigh infinite variation in conditions, standards, and purposes makes the problem of training teachers most complex and difficult.—The more I see of teachers and teaching, the less confidence I have in anyone's power to say with precision or in great detail what abilities and qualities are essential to success in the classroom. Much less am I satisfied with most of the current theories regarding the origin and natural history of teaching insight and skill, for they do not seem to me to take full account of all the complex factors entering into the problem. *A priori* and analogical reasoning abounds in this field rather more liberally than elsewhere, I think; and prejudice plays a more important rôle than observation and experimentation. The man who is opposed, by the law of inertia mainly, to professional training maintains that the teacher is born, not made; while the professor of pedagogy gives the impression that no one can instruct successfully who has not completed a course in the history, theory, and practice of teaching. Both parties to the controversy often seem cocksure of their position. A well-nigh infinitely complex situation is treated as if all the evidence in the case was at hand, and could be taken in at a single glance. It is small wonder, considering the way this subject has been handled, that the college professor of physics, say, and the normal-school president so often hold diametrically opposite opinions respecting it.

Advantages of the university in respect of scholarship.—But with all the disparity between individual views, I still think that most persons who are giving this matter serious attention, are coming to see

that there are certain requirements which are absolutely fundamental to success in the schoolroom. The limitations as to space prevent me from doing more than naming these requirements, with the merest outline of argument. First of all must be placed knowledge — *concrete, vital, well-organized, extensively related, thoroughly digested knowledge of the subject to be taught.* Everything hangs on this. One cannot lead others where he has not gone himself, and familiarized himself with the country roundabout. I have seen teachers, seemingly well-schooled in method, performing such an apparently simple task as teaching third-grade pupils phonics and spelling. Their work was more or less of a failure from start to finish, mainly because they did not *know* the English language; they did not *know* the function of elementary sounds in verbal combinations; they could not readily show how a sound functioned in this word by comparing it with other words familiar to pupils and in which it functioned in the same way. If broad knowledge is so indispensable in relatively simple work like this, how much more necessary is it in the extremely complex work of the high school? A large part (not all, however,) of the poor teaching I have seen in the secondary school has been due to deficient understanding, in its full meaning and in all its bearings, of the subject under discussion.

. Now, the advantage of university training, for high-school teachers at any rate, hinges upon this first requirement. The normal school as at present organized, with but very few exceptions, is not equipped to give pupils effective professional training for every grade of school work, and adequately supply their academic needs at the same time. When it attempts this herculean task its work becomes superficial and fruitless, and its pupils reach the dead line early. I realize, of course, that the broader opportunities of the university may not be utilized fully. The training may be verbal, scholastic, mechanical; but this is a matter of individual institutions and individual professors. And the criticism applies with equal force to the academic departments of many if not most of the normal schools. On the whole, physics or Latin or English is not taught in any more vital way in the latter than in the former institution. One who inspects high schools sees normal-trained teachers who are just as artificial and slavish and ineffective with their rhetoric or physiology or geometry as the most formal university-trained teacher could possibly be. Most of the non-professional subjects in the normal school

are handled by persons who are themselves strangers to the ideals and theories of the institution, and they often have little sympathy with professional training. Their visits to the professional department are infrequent, hastily made, and it happens that their work goes on utterly indifferent to the principles propounded in the psychology and method classes, and in the practice-school.

I may perhaps be allowed to go to the extent of saying that, speaking generally, the university secures the ablest men in the teaching profession, men with the clearest judgment as well as broadest learning, and my belief is that on the whole they make a sharp distinction between real and verbal knowledge of a subject. When one listens to these men discuss the teaching in the high school of their quondam pupils he realizes that, as a rule, the greater the man's learning in his field the more keenly he appreciates genuine and effective as contrasted with superficial and factitious work. The point I am making is that the academic training of high-school teachers may best be left to the university, which is alone qualified to undertake this work.

How the university can give instruction in knowledge of human nature at the high-school stage.—The second requirement for effective teaching is a subtle sense of the impulses and tendencies of human nature, and especially of developing human nature during the adolescent period. The teacher ought to understand, whether understanding comes from instinct or from learning, how the pupil will react upon school-room situations, in respect alike of matters of instruction and of government. Doubtless much of this understanding must be gained outside of the classroom, from original endowment, and by long and intimate contact in give-and-take relations with all sorts and conditions of boys and girls. An adult candidate for teaching, who has lived the life of a recluse, can probably never acquire a keen sense of human nature. But one who has had first-hand experience can be led to analyze it and see the principles exhibited in it. He can be led to observe directly how boys and girls react to typical situations, and thus he can supplement the review of his own experience. In this way he can be made to some extent aware of how the mind of the learner will most economically assimilate knowledge, so that he can consciously (at the outset) plan his own work in harmony with psychological law. He can be made to realize more or less clearly, too, how the social impulses of individuals can be organized and directed so as to most easily secure unity and sociality in the school group.

The university is well equipped to give the pupil a considerable part at any rate of this instruction. It offers in its own processes conditions much, though not precisely, like those found in the public high school. It comes as close to actual conditions probably as the average practice-school in the normal. University students have come so recently out of the high school, too, that their memories are fresh in reference to many of the most vital problems to be studied, and so, even without direct observation, the work may be made quite concrete and vital.

Limitations as to training through observation.—And yet, most universities are handicapped in not having under their jurisdiction schools of observation, such as are possessed by Columbia and Chicago. A considerable part of the work in educational psychology must be more or less in the air for want of opportunity to see the objects and events discussed. The experience of pupils cannot afford data to illustrate all the principles developed in the courses in Education, for this experience is usually too narrow; and, what is more serious, it is often of the wrong sort. Pupils brought up under military discipline will not understand all you say about self-government unless they can see it in operation. He who has been nourished on the classics during his high-school career will adjust himself with great difficulty to the newer views of relative values, unless you can set before him a lot of concrete evidence relating to the effect upon mind and conduct of a non-classical diet. And one might go on at much length in pointing out the benefits which could be derived from schools of observation in the university.

The question of practice-teaching.—The universities are handicapped again in not having schools of practice, though the limitations from this source are not so great and serious as they are sometimes represented. We do not seem to have made much progress in all our discussion the past ten years on the place and value of practice-work in training schools; but so far as I can tell those who favor *some* practice have the advantage in the controversy. But on the other hand, there is such a thing as having too much—so much that the novice habituates himself in the imitation of the peculiarities of his critic or model teacher, and ceases striving to work out effective methods in the light of principles of mental development. In my opinion, if you can give a high-school teacher insight into human nature as it is displayed under schoolroom conditions you have done about all you can for him. Of course, it is not easy to give such

insight unless the novice is put in situations where he must react in some way; where he must *use* his insight. It is a difficult, if not impossible, task to accumulate real, effective insight against some remote time of need. This is why we should have some practice, not so much for the purpose of acquiring skill as for enabling the student to gain genuine insight. The proper time to get facility in schoolroom technique is when the teacher begins his serious work. The superintendent and not the critic teacher should be responsible for this phase of the breaking-in of the novice. The professional work should aim mainly to develop *understanding*, giving the candidate only a start in the perfecting of technique, and leaving the most to be determined by the peculiar conditions under which he will work.

When I say *understanding* I refer, in the first place, to an intimate, fruitful acquaintance with the types of human nature presented in the average high school, and under schoolroom conditions; secondly, I refer to a knowledge of the influence in the life of a boy or girl of each and all of the branches of instruction; and lastly, I refer to an understanding of the psychology of the subject which the candidate is to teach — not of all subjects, but of his special subject. Note that I have said nothing of devices or of methods, but of the *psychology* of the subject. Methods not founded upon such psychology are bound to be employed in a formal, mechanical, ineffective way. Now, my point is that the university, with its present equipment, can go a good way toward giving this understanding, though it could do the work more completely and genuinely if it could have at hand a school under its own direction. University students, trained constantly as listeners, but not required to *do things*, are too self-contained when they start in teaching: they are not outward, not dynamic enough. They are more "ego-centric" than normal-school students, and to this extent are the less effective. Departments of education in the universities are in need of a more dynamistic atmosphere, if I may so express myself; but this comes only with practice-schools.

Universities more likely to send out secondary teachers of commanding personality.—I have already exceeded the space allotted me, but I cannot close without saying that, in my opinion, the thing that gives all knowledge and all understanding force and fruitfulness in the high school, or elsewhere for that matter, is personality, a term easy to use but hard to satisfactorily define. But we know what is

meant. Now, speaking generally, the university gets the strongest personalities in the commonwealths in which they are located. The most virile and competent men and women are always struggling topward in education as in other matters. It may be, and unfortunately it seems to be generally true, that the most capable men and women in the university do not choose teaching as their profession; but even so, those who do make such a choice are stronger on the whole, in all that this term means, than those who have stopped at some lower point. And this means, as pertaining to our special topic, that if we could we should place over boys and girls in the high school the type of man or woman who has climbed to the top of the educational ladder.

L. H. JONES

President Michigan State Normal College

Personal qualities, skill, and scholarship required in secondary teachers.—The teacher in the secondary school should in general be of a slightly more reflective cast of mind than the primary teacher and more disposed to generalize upon facts and emphasize conclusions than to end with the memorizing of separate items of knowledge.

There is required large sympathy with hopes, aspirations, and ideals, while the primary teacher is properly more content with a mastery of present tasks through present and temporary interests. The high-school teacher must, by nature or habit of mind, be able to open up for the young a ready comprehension of what constitutes success in life in its several provinces, or to show how scholarship in students is a general but very real preparation for successful living. To this end his scholarship must be more extensive as well as intensive in his specialty than is required for a smaller degree of success in primary- and grammar-school teaching. The intensive study of specialties should proceed to a point assuring a sufficient supply of subject-matter well digested and systematized to supply dynamic energy in the teaching act, and should stop short of the point at which interests are fixed and views narrowed to single provinces of thought or culture.

Special professional training.—As special professional training the teacher in the secondary school should have all the instruction in psychology which is necessary for the primary teacher, and besides, a

fuller study of the special phase of development peculiar to the age of adolescence. There should be also a much fuller study of the logical relations, topics, subtopics, and concepts of the subjects taught, and a more rigid comparison of this logical order with the psychological order in which these topics, subtopics, and concepts of a subject are most easily mastered by the adolescent mind; and especially a fuller study of such arrangement of these after they are learned by the pupils, as will make them best teach the generalizations which they are to suggest to the young.

There should be an especial study of ways or methods of teaching subjects so that they may be the means of creating beliefs, suggesting aspirations, developing interests, and establishing habits—any of which are of much greater importance than the mere learning of this knowledge as nonvitalized, disconnected, unrelated mental possession.

Universities in their relation to preparation of secondary teachers.—Neither universities nor normal schools have succeeded as yet in preparing properly the teacher for the secondary schools. There are certain well-marked defects in the university graduate, considered as a teacher in the secondary school.

1. As to subject-matter and methods he tries to have his secondary pupils do at once what his professors have had him do in his university course, ignoring the immaturity of his pupils. This tendency has grown worse and worse in recent years, as the tendency toward extreme specialization has grown more pronounced in the universities.

2. He tries to confine his students to minute study of small provinces of a subject, rather than to lead them toward larger views or more general conceptions. Hence he fails to make his instruction helpful to his pupils in shaping their beliefs, in stimulating their aspirations, or forming their ideals. I do not mean that he is too thorough in his teaching, but that he lays stress on small things to the exclusion of larger wholes which are more easily understood by the high-school pupil, and are more significant and helpful to him. He is exhaustive rather than thorough in his instruction. This evil is more disastrous to pupils who do not advance beyond the high school than it is for those who are preparing for college or university.

3. He comes to the high school bearing the university feeling that it is more important to teach subjects than pupils. This prevents his feeling responsibility for the advancement or welfare of the individual pupil under his care. Even the pedagogical departments of

our universities have not yet succeeded in fully correcting this wrong attitude of mind in their graduates.

4. His extreme specialization has left him without settled beliefs, general conceptions, or enthusiasm for good citizenship. He is therefore unfit to teach high-school pupils, who are in the formative period of character development, and many of whom will receive no further schooling. He corrects this defect only at the expense of those whom he teaches within the first two or three years of service.

Normal schools and the preparation of secondary teachers.—Normal schools have erred quite as greatly in their preparation of teachers in secondary schools, wherever they have tried to train such teachers, but in a different direction.

1. Normal schools have generally left their graduates with deficient scholarship. This results from admitting pupils with too little preparation, or allowing them to be graduated from courses that are not sufficiently extended and scholarly in character. Some of these institutions are now correcting these defective conditions.

2. They have frequently concerned themselves with the mechanics of teaching (oftentimes mere devices) under the title of methods, without giving attention to the larger significance of the school as an instrument of advancing civilization. There has been a marked improvement in the best institutions for the training of teachers, in this respect, within ten or fifteen years.

In one respect the normal graduate is a distinctively better teacher for ninth- and tenth-grade pupils than is the university graduate; namely, in his readiness to see and appreciate that the true end of teaching in a high school is such assimilation of knowledge by the pupil as to develop character, create efficiency, and direct conduct.

I am far from believing that normal schools should train all the teachers of the secondary schools; but I do believe that high-school instruction will be greatly improved in the near future by a larger proportion of teachers who shall have been trained in normal schools that are able through equipment and faculty to give them work fitted for their needs.

CHARLES B. GILBERT
New York

Universities are able to give students higher scholarship, a broader outlook, a more thorough and intimate acquaintance with subject-matter, and devotion to learning for its own sake. Their business is

to train specialists. Other things being equal, a student who thoroughly knows his subject and is devoted to it is better qualified to teach it than the one who has a less thorough knowledge.

University graduates, however, are apt to be deficient in a sense of relation, their own subject appearing to them of the greatest importance; in a knowledge of child-nature; in the power to adapt teaching to the immature, growing mind; and in the ability to distinguish immaturity from dulness. They are apt to present their subjects in the order of their logical development regardless of the psychological order or the order in which the students can receive and learn them. They are too frequently afflicted with a constriction of the imagination and with an unwholesome contempt for the study of child-nature and the principles of education.

Normal schools usually graduate their students quite deficient in the knowledge of any particular subjects; with a general view of the world of learning quite limited in extent; with a sense, sometimes exaggerated, of the importance of method; but with a sincere belief in the value of the study of child-nature and in the importance of consulting the results of such study to determine how subjects should be presented.

The normal-school graduate is more likely to pursue the psychological order than the logical in teaching, and so far as his learning is sufficient for his needs, is likely to teach his subjects better than a university graduate. But too frequently his learning is not sufficient. He is, indeed, in danger of despising real scholarship and of assuming that teaching is a distinct art and can get along without it.

Naturally, a combination of the good points of both university and normal-school training, with the omission of their bad ones, would be desirable. Under present circumstances, such a combination can be brought about better by the university than by the normal school, inasmuch as it has a better equipment and is able to require a higher standard of admission and to furnish the essential scholarship.

The ideal place for the training of secondary teachers is a teachers' college of some sort attached to a university as a co-ordinate part, utilizing all of the scholarly advantages of the university and adding the special training needed to make teachers. Such schools, however, need to have one feature greatly strengthened. None, so far as I know, with the possible exception of that at Brown University, have adequate facilities for practice by intending teachers; and

such practice as is furnished is usually under conditions such as never will be found to prevail in the schools in which the students will teach. An ideal arrangement would be a close relation between the teachers' college and the local high-school system.

It does not seem desirable at present for the ordinary normal school to add to its course and give degrees in education. The normal schools are not now able to even approximately supply teachers for the elementary schools for which they are especially intended, and to divert any portion of the money belonging to them to a lengthened course for the sake of training teachers for high schools would result in thinning the work all along the line. There are practically none of them equipped for doing such scholarly work as is required for the training of secondary teachers and unless the states are willing to enormously increase the appropriations, they cannot do this high grade of work, which necessarily requires the expenditure of large funds. It is much more important that for the present at least all efforts for the extension of normal-school facilities be directed to increasing their number and making them more efficient for the supply of the needs of the elementary school, and those who are especially interested in the development of the training of secondary teachers should use all their efforts for the strengthening of the departments of the universities according to lines indicated above.

BIBLIOGRAPHY

For the convenience of readers the following brief bibliography is inserted. It is grouped under the several divisions of the study presented in the *Yearbook* according as it has a primary bearing upon one or another of these divisions.

I

- BISHOP, J. REMSEN. "The Function of the High School of Today." *Proc. N. E. A.* [1901], pp. 570-76.
- Brooks, Stratton D. "The Function of the High School of Today." *Proc. N. E. A.* [1901], pp. 576-78.
- BROWN, ELMER E. *The Making of Our Middle Schools, Passim.* (This is the best single book on the historical aspect.)
- BROWN, J. STANLEY. "In What Respects Should the High School be Modified to Meet Twentieth Century Demands?" *Proc. N. E. A.* [1904], pp. 491-95.
- BUCK, B. F. (Same topic.) *Proc. N. E. A.* [1904], pp. 496-502.
- BUTLER, N. M. "The Function of the Secondary School," *The Meaning of Education*, pp. 151-83.
- DEXTER, EDWIN G. *History of Education in the United States*, pp. 170-81.
- FROULA, V. K. (Editor) *Report of National Conference on Secondary Education, Passim.*
- HADLEY, A. T. "The Meaning and Purpose of Secondary Education." *School Review*, Vol. X, pp. 729-41.
- HANUS, PAUL H. See especially "Secondary Education as a Unifying Force in American Life," in his *Educational Aims and Educational Values*, pp. 113-38.
A Modern School, pp. 43-67.
- Symposium on relation of the high school to the life of the people. *Proc. N. E. A.* [1897], pp. 694-99.
- WOODWARD, C. M. "The Opportunity and Function of the Secondary School." *Proc. N. E. A.* [1903], pp. 60-65.

II

- HANUS, PAUL H. "The Preparation of the High-School Teacher of Mathematics." *School Review*, Vol. V, pp. 504-18.
- HARRIS, W. T. In *Educational Review*, Vol. XVII, pp. 11, 12.
- HARTWELL, S. O. "The Equipment of the High-School Principal." *School Review*, Vol. IX, p. 160.

- HARTWELL, HERBERT W. "A National Standard of Higher Education." *Atlantic Monthly*, Vol. XC, pp. 329-35.
- HULING, RAY GREENE. "The Problem of Service," *Education*, Vol. XXI, pp. 129-33.
- JACOBS, WALTER B. "The Characteristics of an Efficient Secondary Teacher." *School Review*, Vol. XII, pp. 706-15.
- KNIGHT, GEORGE W. "What the Teacher of American History Should Be and Do." *School Review*, Vol. X, pp. 208-16.
- LEONARD, ALBERT. Editorials on the high-school teacher's training. *Journal of Pedagogy*, Vol. XI, pp. 258-61; Vol. XII, pp. 3-8.
- RUSSELL, J. E. "The Training of Teachers for Secondary Schools." *Proc. N. E. A.* [1899], pp. 285-96; [1901], pp. 636-41; *Educational Review*, Vol. XVII, pp. 364-79.
- THURBER, SAMUEL. "An Address to High-School Assistants." *Education*, Vol. XXI, pp. 81-91.

III

- HINSDALE, DE GARMO and E. E. BROWN. "The Certification of College and University Graduates as Teachers in the Public Schools." *School Review*, Vol. VII, pp. 331-71.
- LOCKE, GEORGE H. (Editorial.) "The New Requirement and Plan of Certification of Secondary Teachers in California." *School Review*, Vol. IX, pp. 193-95.
- Reports of the United States Commissioner of Education.*

IV and V

- BISHOP, W. W. "Preparation for Teaching in Secondary Schools." *Educational Review*, Vol. XIX, pp. 175-86.
- BUCHNER, E. F. "The Function of Departments of Education in Southern Universities." Pamphlet.
- BURNHAM, W. H. "Education as a University Subject." *Educational Review*, Vol. XXVI, pp. 236-45.
- CLARK, W. A. "Training of Teachers for Secondary Schools." *Journal of Pedagogy*, Vol. XVI, pp. 124-35.
- HALL, G. STANLEY. See index to his *Adolescence*.
- HANUS, PAUL H. *A Modern School*, pp. 244-47, 251-84.
- HINSDALE, B. A. "The Study of Education in American Colleges and Universities." *Educational Review*, Vol. XIX, pp. 105-20.
(See also his *Studies in American Education*.)
- JACOBS, W. B. "The Training of Teachers for Secondary Schools." *School Review*, Vol. V, pp. 375-86.
- KINNAMAN, A. J. "Pedagogy in Our Colleges and Universities." *Pedagogical Seminary*, Vol. IX, pp. 366-73.

- LEWIS, F. C. "The Professional Training of College-Bred Teachers." *Educational Review*, Vol. XXVII, pp. 433-42.
- LOCKE, GEORGE H. "The Training of Teachers for Secondary Schools." *Proc. N. E. A.* [1901], pp. 641-43.
- LUCKEY, G. W. A. *The Professional Training of Secondary Teachers in the United States.* (Especially Chapters IV, V, and VI. This is by far the most complete and serviceable reference on the subject.)
- MANCHESTER, O. L. "Are We [Normal Schools] Justified in Attempting to Prepare Teachers for the High School?" *The Vidette*, Feb. 1901, pp. 1-6.
- "College Graduates and Teachers." (Editorial.) *The Nation*, Vol. LXIX, pp. 202, 203.
- O'SHEA, M. V. "The Function of the University in the Training of Secondary Teachers." *School Review*, Vol. VIII, pp. 157-70.
- "Concerning High-School Teachers," *School Review*, Vol. X, pp. 778-95.

REFERENCES FOR COMPARATIVE STUDY

- BOLTON, FREDERICK E. In *The Secondary School System of Germany*, pp. 55-128.
- CUNNINGHAM, WILLIAM. "The Training of Teachers at Cambridge University." *Educational Review*, Vol. XVII, pp. 450-55.
- LUCKEY, G. W. A. In *The Professional Training of Secondary Teachers in the United States*, pp. 30-50.
- RUSSELL, J. E. In "German Higher Schools." Esp. pp. 352-69. *Educational Review*, Vol. XVII, pp. 17-33.
- "The Status of Professional Training of Secondary Teachers in France." *Education*, Vol. XXII, pp. 652-54.
- "The Training of Secondary Teachers at Oxford." *Educational Review*, Vol. XXVIII, pp. 518-22.

COLLECTED BIBLIOGRAPHY

- BOLTON, F. E. *The Secondary School System of Germany*, pp. 385-90.
- BROWN, ELMER E. *The Making of Our Middle Schools*, pp. 480-518.
- LUCKEY, G. W. A. *Training of Secondary Teachers*, pp. 258-61.
- The *Educational Review*, *Pedagogical Seminary*, *School Review*, and the *Reports of the Commissioner of Education* keep educational bibliography up to date.

MINUTES OF MEETINGS HELD AT ST. LOUIS, MO.,
JUNE 27 and 28, 1904

(ROOM I, HALL OF CONGRESSES, LOUISIANA PURCHASE EXPOSITION)

In a conference of the Executive Committee just before this meeting it was decided that the next topic for study should be "The Education and Training of Secondary Teachers." This was in accordance with the dominant preference expressed by members of the Society. Time did not allow a consideration of other items of business.

The meeting was called to order by the President, Wilbur S. Jackman, who briefly introduced the subject of nature-study, and asked for a frank and critical discussion of his views on the subject as presented in the *Third Yearbook*, Part II.

Although the *Yearbook* had been in the hands of members but two weeks, the discussion showed a more careful study of it than usual.

Professor George M. Forbes, of Rochester University, C. P. Cary, State Superintendent of Wisconsin, Herman T. Lukens, and Theodore B. Noss, of Pennsylvania, L. E. Wolfe, of Texas, Grant Karr, of New York; Jesse D. Burks, of New Jersey, and a few others took part in the discussion. (For members of the National Society and other readers of the *Yearbook*, two of the discussions are printed. It is now the policy to print some of the discussions that will be of interest and value to members and others. Discussions ought to clear up more than they usually do, and the man who will promote the art of scientific criticism in discussion will be an educational benefactor.)

By motion the Executive Committee was instructed to fix the meeting for Tuesday, June 28, at a more suitable hour and place. This question was considered by the Committee but no hour and place more generally convenient could be found. Notice was so given.

Ordered by motion that phases of the paper not touched upon thus far, especially (1) the moral value of nature-study, and (2) the course of study outlined by Dr. Jackman be special orders for the Tuesday meeting.

Rain and mud and the many counter attractions left the attendance smaller than was expected. About forty were present.

MINUTES FOR MEETING TUESDAY, JUNE 28

A round-table discussion was held for two hours on Tuesday afternoon, following the lines ordered the day before.

The following persons were elected to active membership:

Frederic E. Farrington, Assistant Professor of Education, University of California, Berkeley, Calif.

Maximilian P. E. Groszmann, The Groszmann School for Nervous and Atypical Children, Plainfield, N. J.

David S. Snedden, Assistant Professor of Education, Leland Stanford Junior University, Stanford University, Calif.

DISCUSSION OF DR. JACKMAN'S PAPER ON NATURE STUDY

GEORGE M. FORBES
University of Rochester

MR. CHAIRMAN:

I have read the monograph of Professor Jackman with keen interest and wish to express my admiration and appreciation of this comprehensive attempt to define the scope, the correlations, and the purpose of nature-study in elementary education. Its value is by no means confined to the positive contribution which it makes to the educational evaluation of the study. It is scarcely less valuable as a stimulus to thought and experiment, and as a point of departure for organizing and defining both theory and practice regarding this subject, now so vague and undefined in the minds of most teachers.

In suggesting some questions which have occurred to me regarding the views set forth by Professor Jackman, I shall leave the minor points with mere mention and take the few minutes allowed me in discussing the main contention, that upon which he stakes the whole value of the study; viz., that the supreme end of the study is to develop moral character.

What constitutes a mental image.—Among the minor points I would mention Professor Jackman's use of the word "image," and his exposition of what is involved in the formation of an image (page 18 seq.). The illustration used by Professor Jackman would seem to indicate that all generalization through the discovery of resemblance, and all organization of facts through the discovery of causal relations are included in the process of forming an image. Here the conceptual and perceptual process and products seem to be completely confused and the most abstract product of generalization is designated as an "image."

Individual vs. type.—Another point is Professor Jackman's advocacy of the study of individuals and individual characteristics rather than of type (Chap. III). The position taken in this chapter seems somewhat inconsistent with that on page 11, where the author discusses "the unity of nature-study and natural science." The interest which children feel in the study of individual characteristics is rather a sympathetic and aesthetic interest than a scientific one. It seems the very essence of scientific interest that it seeks the type and the law. It is an exaggerated individualism, a projection of human life into nature, that gives all the charm to such books as Seton Thompson's; and such books are obviously very remote from the scientific in their spirit.

In Chap. III Professor Jackman recognizes that a child's interest must

be in the individual, and thus indicates the natural dividing line between the earlier and the later and more strictly scientific study of nature. It is a question whether a genuinely scientific interest, i. e., an interest in the abstract process of generalization which leads to type and law comes earlier in the average child than the period of adolescence, and so whether in the presentation of form, color, motion and life in nature to young children any attempt should be made to appeal to other than sympathetic and æsthetic interests. Sympathy with nature and enjoyment of it seem the natural ends, the ends prescribed by the nature of the child.

To comprehend and to enjoy nature as the poet comprehends it and enjoys it; to find spirit in nature and beauty, and thus to make nature a means of companionship and pure enjoyment — these are ends of nature-study which should never be overlooked. The great question is whether the analytic and abstract view of science, which dissects nature and dissolves its individuality into the shadows of type and law, is not positively hostile to the other point of view.

Whether nature as means of culture and nature as means of scientific training are not essentially different studies. I do not assume to answer this question. I only raise it.

Number work and nature-study.— Still another point is the author's view of the relation of number work to nature-study (Chap. V). The author's argument against drill work in number seems to rest upon the assumption that, if you dissociate the numerical symbol from particular concrete objects, you divest it of all meaning for the child. This cannot be admitted. One might as well say that when you dissociate the word-symbol from some particular object, you divest it of all meaning. The child cannot read, in any proper sense of the term, until it is able to take the meaning direct from the symbol; i. e., until the meaning of the symbol is an idea, not a particular thing; so the child cannot calculate in any adequate way until it takes the meaning of the number direct from the symbol without immediate reference to a particular object or group; and it is not too much to say that it is, and should be, the great aim of the teacher to secure this power of abstraction and thus emancipate the mind of the child from sense-perceptual bondage. The modern advance in the teaching of number is marked, not by omitting the training necessary to deal with number in the abstract, but by insisting upon an adequate concrete basis for such abstraction. It insists that number shall begin with the concrete particular in order to give precise and definite meaning to the symbols, but not that it shall end with it. The quantitative treatment of nature may contribute greatly to the mastery of the science of number, but its contribution would be of doubtful value on the whole if it discredited the drill which develops power to grasp the universal in number apart from this or that concrete application.

Nature-study and morality.—The discussion which Professor Jackman regards as fundamental, because it determines the value of all the rest, is that regarding the relation of nature-study to morals (Chap. VI). Any adequate treatment of the author's view of this relation would require far more time than can be allotted to this discussion. I can only point out in the most summary way some grounds of dissent from the position taken. This position seems to be based upon two conceptions: first, that science has somehow established a new foundation for morality; and second, that the essence of morality is in that "concession," or "adaptation," which is exhibited throughout nature.

In regard to the first it may well be questioned how a study which concerns itself wholly with impersonal law, which deals exclusively with the category of a rigid causal sequence, can establish any foundation for a science the very corner-stone of which is the presupposition of freedom, and choice. The serious question is whether there is any morality in nature as such, whether all the morality which we may think we find there is not the imaginative projection of personal life into the life of nature, the product of the sympathetic and poetic view of nature, and so rightly rejected by the scientist as from his point of view an unwarranted importation of teleology and sympathy, where he finds only rigid causality. I doubt if there can ever be any clear thinking regarding morality so long as one fails to see that the abstract category of cause, as science conceives it, is simply the negation, not the foundation, of morality. To suppose that morality can be illumined or explained by being referred to this category is to suppose that you can explain the higher by the lower, the concrete by the abstract.

Regarding the second conception, that the essence of morality consists in adaptation, it may be questioned whether the vagueness and ambiguity of the term does not make it worthless for the purpose of defining morality. The author's illustrations would seem to indicate this fundamental ambiguity. If the organic reactions to environment in grass and trees are identical with the act of proffering a cup of cold water, then it is doubtful whether a valid distinction can be made anywhere. We cannot stop at the trees and the grass but must include the formation of the crystal and the chemical reaction in our idea of adaptation and concession; on the other hand it is difficult to see why the utterance of a falsehood, and the act of theft are not as much adaptations to environment as the proffering of the cup of cold water. It would be interesting to inquire how the author interprets the struggle for existence in organic nature. Does not the fittest, i. e., the strongest, survive; and must not the weakest go to the wall; and is not this process also one of "adaptation" and "concession" to the pressure of surroundings?

For these reasons we cannot share the author's hopes of a renovated morality through the scientific study of nature. Morality grows out of the

relation of man to man, its great exemplifications must always be in human life, and from this field too must the youth draw his great inspiration to duty. All the morality in nature is read into it by sympathetic and imaginative interpretation, but this is the very interpretation which science cannot accept. Science does, it is true, make indirectly great contributions to morality, but it is not by finding morality in nature. It is rather in developing the sense of reality and the disinterested love of truth, and this may be transferred to human life and result in a love of truthfulness and a hatred of all sham.

The scientific study of nature must, it would seem, be content with this indirect contribution to morals, and rest its right to recognition, not upon a claim to be the foundation and source of all true morality, but upon the other well-known advantages of scientific study.

COMMENTS UPON PROFESSOR FORBES' REMARKS BY THE AUTHOR OF
THE YEARBOOK

There is no discipline equal to that which comes from having one's ideas overhauled in a frank and open discussion. What is taken as a difference of ideas, however, often turns out to be but a difference in the use of terms to express practically the same ideas; or as in this case, perhaps, the writer of the *Yearbook* did not make himself sufficiently clear to be easily understood. These two suggestions will account, I am sure, for most of the exceptions raised by Professor Forbes, but not for all.

It would prolong the discussion beyond reasonable limits to fully consider the point raised about number work. In a word, I insist that much work that passes for number work is language lessons pure and simple wherein words and symbols are used that mean nothing; that a child has the same right to have a mental picture back of a number used that he has to have a mental picture back of any word used. This does not imply the perpetual presence of the object in number work any more than it implies that a mountain must be present always when the pupil reads about it. "Number in the abstract" is a phrase responsible for much confusion. It would be interesting to know what Professor Forbes means by it.

The far more important point relates to the bearing of nature-study upon morals. The point of view adopted by Professor Forbes is radically different from that taken in the paper. The corner-stone of his ethical doctrine seems to be "the presupposition of freedom and choice." This, the paper neither assumes nor allows. There is no morality among the trees—no trace discernible. There is a little trace of the beginnings of it among the beasts—in the care of their young, for example. Morality among human beings is but that extension of these primitive and parental relations so as to cover a wider field of activities which the higher organized brain of man has enabled him to

make. In the struggle for existence there is nothing incompatible with the highest ethical code. With man, the struggle is for the *highest existence*; with the brutes for a lower—at least according to human standards. The struggle for existence on the lower or brute plane involves the destruction of the weak and helpless; on the higher or human level it involves their nurture and care; otherwise our existence is not worth having. This is in accord with the law of love which is as absolute and irrevocable as the law of gravitation. As the unfolding of the leaf is a concession to the sunshine, so the unfoldings of mercy are concessions of the human being toward those that need help. The trees and beasts adapt themselves to each other on the basis of physical strength; on the human plane adaptations take place on higher grounds. Instead of killing the weak or crowding them to the wall, we succor them—that is the highest adaptation.

The utterance of a falsehood and theft, as Professor Forbes suggests, are indeed adaptations to environment. The race—some of it—has found out that the proffering of a cup of cold water is also an adaptation and that it is of a much higher type, and hence moralists are uniform in their advocacy of it. In the long run—ages long—it is the faith of the optimist that this type of adaptation will finally prevail and that through it the race will be lifted to heights which are, as yet, undreamed of.

HERMAN T. LUKENS, STATE NORMAL SCHOOL, CALIFORNIA, PA.

I am in hearty accord with what I understand to be Professor Jackman's standpoint in the teaching of arithmetic. Nature-study needs the assistance of number work to make its images exact and definite. Arithmetic needs to do such work in order to gain motive and sanity in its study. The co-operation of the two subjects is mutually helpful and neither can afford to do without the other. The arithmetic is still one of the worst-taught subjects in the curriculum, because of the disconnected character of the problems. What should be capable of implanting and nourishing deeply moral feelings of honesty, integrity, justice, order, and faith in God, serves often to teach cunning, guessing, cheating, profit and loss, and speculation, in which the pupil, however, is often blissfully unconscious of his errors when he dots his decimal point down in the wrong place.

The question of teaching arithmetic *incidentally* and omitting drills on arithmetical processes has absolutely nothing to do with the paper before us. No such proposal is made in the paper nor would it be practicable if it were made.

The geography is in the same relation to the arithmetic as is the nature-study—needing the exact precision of measurement for its images of area, population, distance, industries, products, and commerce; and, on the other hand, furnishing the real problems that set the pupil in the right attitude of interest toward his number conceptions.

ACTIVE MEMBERS OF THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

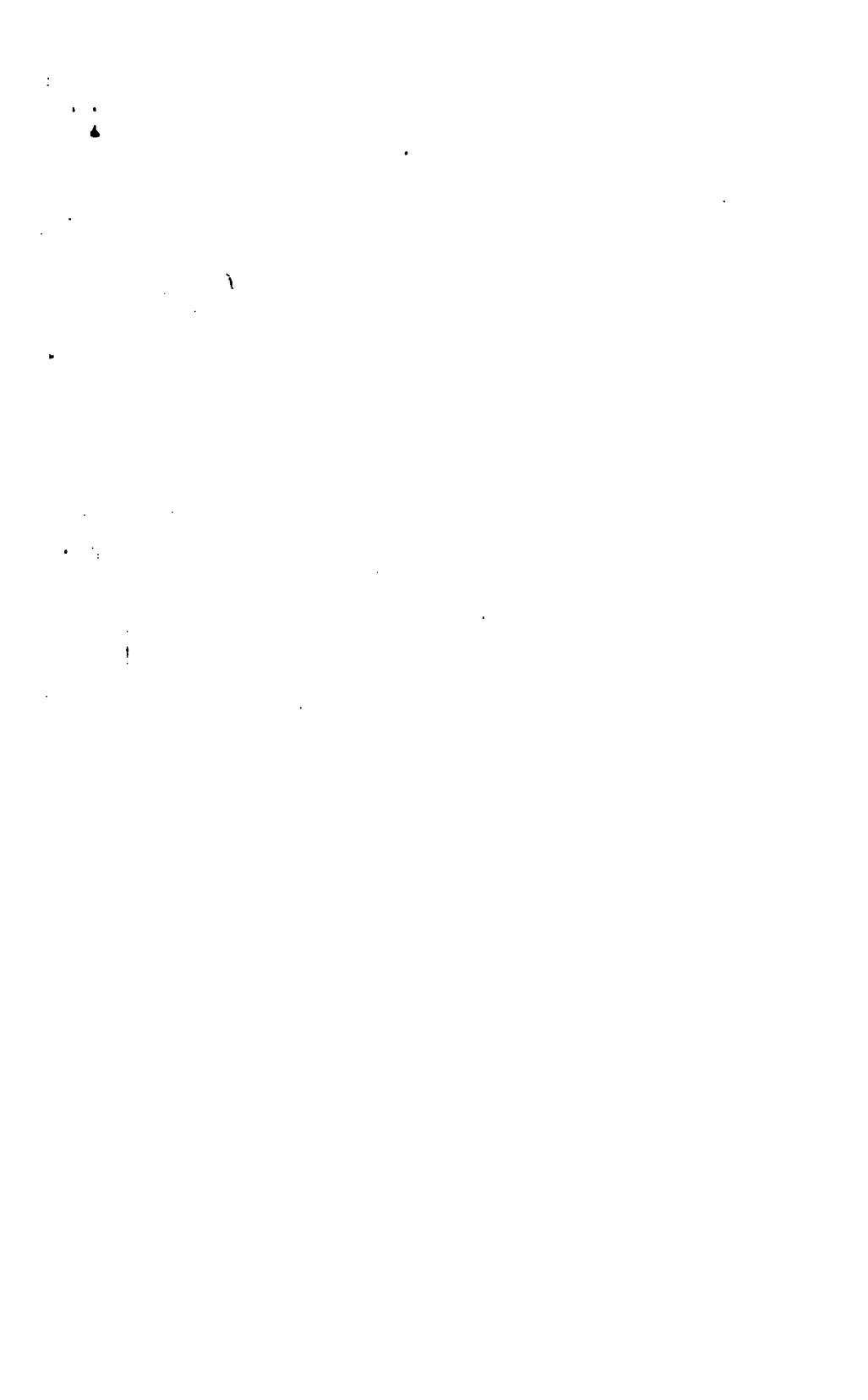
Edwin A. Alderman, president University of Virginia, Charlottesville, Va.
Zonia Baber, School of Education, Chicago, Ill.
Frank P. Bachman, Ohio University, Athens, Ohio.
C. M. Bardwell, superintendent of schools, Aurora, Ill.
R. H. Beggs, Whittier School, Denver, Colo.
Ezra W. Benedict, principal of high school, Warrensburg, N. Y.
Francis G. Blair, State Normal School, Charleston, Ill.
Frederick E. Bolton, Iowa State University, Iowa City, Iowa.
Richard G. Boone, editor *Education*, 80 Bruce avenue, Yonkers, N. Y.
Eugene C. Branson, president State Normal School, Athens, Ga.
Francis B. Brandt, Central High School, Philadelphia, Pa.
Sarah C. Brooks, principal Baltimore Teachers' Training School, Baltimore,
Md.
Stratton D. Brooks, supervisor city schools, School Committee Building, Bos-
ton, Mass.
Edwin C. Broome, superintendent of schools, Rahway, N. J.
Elmer E. Brown, University of California, Berkeley, Calif.
George P. Brown, editor *School and Home Education*, Bloomington, Ill.
John F. Brown, Iowa State University, Iowa City, Iowa.
J. Stanley Brown, superintendent Township High School, Joliet, Ill.
Martin G. Brumbaugh, University of Pennsylvania, Philadelphia, Pa.
William L. Bryan, president Indiana University, Bloomington, Ind.
George V. Buchanan, superintendent of schools, Sedalia, Mo.
Edward F. Buchner, University of Alabama, University, Ala.
Jesse D. Burks, 646 E. Twenty-eighth street, Paterson, N. J.
W. H. Burnham, Clark University, Worcester, Mass.
B. C. Caldwell, president Louisiana State Normal School, Natchitoches, La.
W. T. Carrington, state superintendent, Jefferson City, Mo.
Clarence F. Carroll, superintendent of schools, Rochester, N. Y.
C. P. Cary, state superintendent, Madison, Wis.
Charles E. Chadsey, superintendent of schools, Denver, Colo.
E. W. Chubb, professor of English, Ohio University, Athens, Ohio.
P. P. Claxton, University of Tennessee, Knoxville, Tenn.
David E. Cloyd, superintendent of schools, Wheeling, W. Va.
John W. Cook, president State Normal School, De Kalb, Ill.

*It is assumed that a member wishes to continue membership until he notifies the Secretary of his withdrawal.

- William J. Crane, superintendent of schools, Marshalltown, Iowa.
Ellwood I. Cubberly, Leland Stanford University, Stanford University, Calif.
Frank M. Darling, Chicago Normal School, Chicago, Ill.
Wm. M. Davidson, superintendent of schools, Omaha, Neb.
Washington S. Dearmont, president State Normal School, Cape Girardeau, Mo.
Charles DeGarmo, Cornell University, Ithaca, N. Y.
John Dewey, Columbia University, New York, N. Y.
Edwin G. Dexter, University of Illinois, Urbana, Ill.
Richard E. Dodge, Columbia University, New York, N. Y.
Newton C. Dougherty, superintendent of schools, Peoria, Ill.
Augustus S. Downing, Education Department, Albany, N. Y.
F. B. Dressler, University of California, Berkeley, Calif.
Samuel T. Dutton, Columbia University, New York, N. Y.
Charles B. Dyke, Oracle, Ariz.
A. Caswell Ellis, University of Texas, Austin, Tex.
W. H. Elson, superintendent of schools, Grand Rapids, Mich.
David Felmley, president Illinois State Normal University, Normal, Ill.
Frank A. Fitzpatrick, 93 Summer street, Boston, Mass.
George M. Forbes, Rochester University, Rochester, N. Y.
J. M. H. Frederick, superintendent of schools, Lakewood, Ohio.
Frederic E. Farrington, University of California, Berkeley, Calif.
Charles B. Gilbert, 1170 Broadway, New York, N. Y.
Newell D. Gilbert, superintendent of schools, DeKalb, Ill.
John Glotfelter, State Normal School, Emporia, Kan.
James M. Greenwood, superintendent of schools, Kansas City, Mo.
Maximilian P. E. Groszmann, director the Groszmann School, Johnston's Drive, Plainfield, N. J.
W. N. Hailman, Chicago Normal School, Chicago, Ill.
Reuben Post Halleck, Boys' High School, Louisville, Ky.
Rufus H. Halsey, president State Normal School, Oshkosh, Wis.
Paul H. Hanus, Harvard University, Cambridge, Mass.
Ada Van Stone Harris, supervisor kindergarten and primary grades, Rochester, N. Y.
W. H. Hatch, superintendent of schools, Oak Park, Ill.
Mrs. Josephine W. Heermans, principal Whittier School, Kansas City, Mo.
J. W. Henninger, president State Normal School, Macomb, Ill.
Walter L. Hervey, Park avenue and Fifty-ninth street, New York, N. Y.
Edgar L. Hewitt, U. S. National Museum, Washington, D. C.
Albert Ross Hill, Missouri Teachers' College, Columbus, Mo.
Manfred J. Holmes, Illinois State Normal University, Normal, Ill.
Wilber W. Howe, superintendent of schools, Whitehall, N. Y.
Wilbur S. Jackman, University of Chicago, Chicago, Ill.

- Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.
Lewis H. Jones, president State Normal College, Ypsilanti, Mich.
Grant Karr, State Normal School, Oswego, N. Y.
John A. Keith, State Normal School, DeKalb, Ill.
John R. Kirk, president State Normal School, Kirksville, Mo.
Henry E. Kratz, superintendent of schools, Calumet, Mich.
Ossian H. Lang, editor, 61 E. Ninth street, New York, N. Y.
Isabel Lawrence, State Normal School, St. Cloud, Minn.
Homer P. Lewis, superintendent of schools, Worcester, Mass.
George H. Locke, University of Chicago, Chicago, Ill.
L. C. Lord, president State Normal School, Charleston, Ill.
Charles D. Lowry, district superintendent of schools, Chicago, Ill.
G. W. A. Luckey, University of Nebraska, Lincoln, Neb.
Herman T. Lukens, State Normal School, California, Pa.
E. O. Lyte, president State Normal School, Millersville, Pa.
John A. MacVannel, Columbia University, New York, N. Y.
David R. Major, State University, Columbus, Ohio.
C. E. Mann, superintendent of schools, Batavia, Ill.
Frank A. Manny, Ethical Culture School, Central Park, West and Sixty-third
street, New York, N. Y.
Elizabeth Mavity, State Normal University, Normal, Ill.
Guy E. Maxwell, president State Normal School, Winona, Minn.
Wm. H. Maxwell, superintendent of schools, New York, N. Y.
Charles McKenny, president State Normal School, Milwaukee, Wis.
Charles A. McMurry, State Normal School, DeKalb, Ill.
Frank M. McMurry, Columbia University, New York, N. Y.
Israel C. McNeil, president State Normal School, West Superior, Wis.
Wm. A. Millis, superintendent of schools, Crawfordsville, Ind.
J. F. Millspaugh, president State Normal School, Los Angeles, Calif.
Paul Monroe, Columbia University, New York, N. Y.
Will S. Monroe, State Normal School, Westfield, Mass.
Ernest C. Moore, University of California, Berkeley, Calif.
Frank Morton, Lowell High School, San Francisco, Calif.
George A. Newton, superintendent of schools, Greenville, Texas.
Theodore B. Noss, president State Normal School, California, Pa.
M. V. O'Shea, University of Wisconsin, Madison, Wis.
Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
John H. Phillips, superintendent of schools, Birmingham, Ala.
John T. Prince, West Newton, Mass.
R. R. Reeder, Hastings-on-Hudson, N. Y.
J. F. Reigart, 109 W. Fifty-fourth street, New York, N. Y.
Emily J. Rice, College of Education, Chicago, Ill.
C. R. Richards, Columbia University, New York, N. Y.

- R. N. Roark, Kentucky University, Lexington, Ky.
Stuart H. Rowe, Brooklyn Training School for Teachers, Prospect Place near
Nostrand avenue, Brooklyn, N. Y.
J. E. Russell, Columbia University, New York, N. Y.
Howard Sandison, State Normal School, Terre Haute, Ind.
Myron T. Scudder, principal State Normal School, New Paltz, N. Y.
Levi Seeley, State Normal School, Trenton, N. J.
Burgess Shank, State Normal School, Valley City, N. D.
James J. Sheppard, principal High School of Commerce, New York, N. Y.
Waite A. Shoemaker, president State Normal School, St. Cloud, Minn.
Henry W. Shryock, State Normal University, Carbondale, Ill.
Herbert M. Slauson, superintendent of schools, Ann Arbor, Mich.
David E. Smith, Teachers College, New York, N. Y.
David S. Snedden, Leland Stanford Jr. University, Stanford University, Calif.
Z. X. Snyder, president State Normal School, Greeley, Colo.
F. Louis Soldan, superintendent of instruction, St. Louis, Mo.
Edward D. Starbuck, Earlham College, Richmond, Ind.
W. S. Sutton, University of Texas, Austin, Texas.
Joseph S. Taylor, district superintendent of schools, 2275 Aqueduct avenue,
New York, N. Y.
Charles H. Thurber, editor, Ginn & Co., Boston, Mass.
C. C. Van Liew, president State Normal School, Chico, Calif.
Jas. H. Van Sickles, superintendent of schools, Baltimore, Md.
Elmer W. Walker, superintendent State School for Deaf, Delavan, Wis.
Sarah J. Walter, Hampton Institute, Hampton, Va.
A. S. Whitney, University of Michigan, Ann Arbor, Mich.
John J. Wilkinson, Elmhurst, Ill.
J. N. Wilkinson, president State Normal School, Emporia, Kan.
Lightmer Witmer, University of Pennsylvania, Philadelphia, Pa.
L. E. Wolfe, superintendent of schools, San Antonio, Texas.



THE FOURTH YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART II

THE PLACE OF VOCATIONAL SUBJECTS IN THE HIGH-SCHOOL CURRICULUM

BY

J. STANLEY BROWN
Township High School, Joliet, Ill.
GILBERT B. MORRISON
William McKinley High School, St. Louis, Mo.
ELLEN H. RICHARDS
Massachusetts Institute of Technology

EDITED BY
MANFRED J. HOLMES
SECRETARY OF THE SOCIETY

MEETINGS FOR THE DISCUSSION OF THIS YEARBOOK WILL BE HELD AT 4:00 P. M.
ON MONDAY AND WEDNESDAY, JULY 3 AND 5, 1905
HEADQUARTERS, THE COLEMAN HOUSE, ASBURY PARK, N. J.

BLOOMINGTON, ILLINOIS
PANTAGRAPH PRINTING AND STATIONERY COMPANY
1905

COPYRIGHT, 1905, BY
MANFRED J. HOLMES,
BLOOMINGTON, ILL.

OFFICERS AND EXECUTIVE COMMITTEE

EDWIN G. DEXTER, University of Illinois, Urbana, Ill.,
President.

C. P. CARY, State Superintendent, Madison, Wis.

REUBEN POST HALLECK, Boys' High School, Louisville, Ky.

CHARLES A. McMURRY, DeKalb, Ill.

JAMES H. VAN SICKLE, Superintendent of Schools, Baltimore, Md.

MANFRED J. HOLMES, Illinois State Normal University, Normal, Ill., *Secretary-Treasurer.*

ANNOUNCEMENT TO ACTIVE MEMBERS

There has been a general opinion among the members of the Society that our meetings would be more effective without the presence of a miscellaneous audience. This opinion has grown into a positive determination to take measures that will avoid such a crowd. There are several things that will contribute to bringing about this highly desirable end. (1) The selection of a room for meeting. The room should be as convenient as possible for members, but not such as will make it easy for anybody to drop in out of mere curiosity. (2) Admission to the meetings should be by personal identification or by certificate of membership. (3) It ought to be better understood and accepted that those eligible to enter the meetings are (a) members—both active and associate, and (b) guests—both those invited by the officers as guests of the Society and those invited by active members as personal guests.

The general and positive demand that a more definite program be planned for each meeting will be complied with; but nothing will be done to take away entire freedom and ample opportunity for any member to take part in discussion; and no policy will be adopted that will relieve members from responsibility of preparing for the meeting by at least reading the *Yearbook*.

The opinion is none the less general and positive that there be laid before the Society a definite topic or series of topics for consideration, and that the chairman enforce strict adherence to a topic until the next one is due.

The time has not yet come when we can decide on time limits for discussion in advance of a meeting. But experience has proved that both prudence and justice occasionally require a limit to the number of times a member may speak, and to the length of his remarks.

Non-members should not be granted the floor unless invited. At one meeting a man who neither understood nor sympathized with the work of the Society delivered a five-minute criticism telling what the Society ought and ought not to do. Any ruling in accordance with this suggestion should receive hearty support from all members.

Unless otherwise announced in the final Official Program-Bulletin of the National Educational Association, the meetings at Asbury Park will be held in the First Presbyterian Church.

It is hoped that a large number of active members will be present at the Asbury Park meetings prepared to question or discuss some definite aspect of the great educational problem which the present *Yearbook* brings before the Society.

At the Wednesday meeting some time will be given to a consideration of the welfare, policy, and future work of the Society. The suggestions under the Secretary's report will then be acted upon.

It is urged that wherever possible members form local circles for the reading and discussion of the *Yearbook*.

The Coleman House will be the Society's headquarters.

M. J. HOLMES, *Secretary*.

CONTENTS

INTRODUCTION	- - - - -	7
THE PLACE OF COMMERCIAL WORK IN THE HIGH-SCHOOL COURSE OF STUDY— <i>J. Stanley Brown</i>	- - - - -	9
THE PRESENT STATUS AND FUTURE OF MANUAL TRAINING IN THE HIGH SCHOOL— <i>Gilbert B. Morrison</i>	- - - - -	18
THE PRESENT STATUS AND FUTURE DEVELOPMENT OF DOMESTIC SCIENCE COURSES IN THE HIGH SCHOOL — <i>Ellen H. Richards</i>	- - - - -	39
DISCUSSION OF THE TRAINING OF SECONDARY TEACHERS— <i>Charles A. McMurry, and Charles B. Gilbert</i>	- - - - -	53
MINUTES OF THE MEETING HELD AT MILWAUKEE	- - - - -	63
REPORT OF THE SECRETARY	- - - - -	66-78
Specific Problems Members Are Engaged Upon	- - - - -	68
How Conduct Meetings of the Society	- - - - -	70
What is Meant by "Scientific Study of Education"?	- - - - -	72
Some Recommendations Touching the Conduct and Welfare of the Society	- - - - -	77

INTRODUCTION

Whatever may be said about school as life itself, it is nevertheless a fundamental and persistent fact that school is also and primarily a preparation for life. History is ever proving the truth of this statement, offering clear evidence at three stages in the evolution of a school: first, at its origin; second, during the period of efficient function; third, in its decline. Every school is called into existence to help children and others to better discharge life's relations and realize life's ideals. As long as it meets the demands upon it, it continues to exist. Its continued survival depends upon its ability to readjust itself to render new service demanded by change in ideals and needs. When it no longer has within itself the principle of accommodation it declines and takes its place among the historic fossils or buried relics of a past age.

Whenever a school or a course of study ceases its *vital* functioning there is evidence that it is not in touch with the great source of life that created it. It must regain the contact of vital service or fall behind the procession of progress, nursing its gone-time ideals with a devotion all unconscious of the pathetic though may be picturesque figure it cuts.

The Executive Committee of the National Society for the Scientific Study of Education decided to bring before the Society one of the most significant aspects or trends of American education to-day. The view is not complete; but even as it is perhaps more is presented than can be covered in discussion at the Asbury Park meetings. Perhaps logical completeness in the general plan may seem to be lacking because there is no chapter on the general function of the public high school, and none on the educational value of the vocational subjects in the high-school course of study to show their necessity in a high

school that is rendering its complete public service. But Professor Dexter has assured the probable presence of President E. J. James, University of Illinois, to discuss these omitted features of the study at Asbury Park.

Under the general topic "The Place of Vocational Subjects in the High School Curriculum," the three great groups of what may be called vocational studies have been treated by persons well qualified to represent their respective aspects of the problem. It should be distinctly understood, however, that opinions of individual writers do not necessarily represent the opinion or meet the sanction of the Society.

In addition to the main feature of this *Yearbook*, a consideration of the problem of training secondary teachers has been carried on in two strong discussions.

A special feature of this book is the Secretary's report on the conditions, needs, and prospects of the Society. I must hope that this will be examined by all members who are sincerely interested in the welfare of the Society.

M. J. H.

THE FOURTH YEARBOOK

THE PLACE OF COMMERCIAL WORK IN THE HIGH-SCHOOL COURSE OF STUDY

J. STANLEY BROWN
Township High School, Joliet, Ill.

SYNOPSIS

The chief factor in determining the high-school course—public opinion; the teacher's function and duty in this connection; the action of public opinion illustrated.

How private schools exercise a corrective and progressive influence upon the courses in public schools.

The evolution of the idea of commercial courses; the old idea—cheap, short cuts; the new idea—a liberal education, time to develop.

The conception of "culture" determined by the ideals of the age; influence of the civic-commercial ideal.

The demand for commercial education of a high order coming to be reflected in the courses of most kinds of schools.

Education ought to be a unit; hence the unwisdom of creating separate schools for vocational courses. Almost every course reaches out into other courses and finds its complement in them; so with commercial courses.

Great stimulus would be given this work if colleges should recognize that it stands for just as much training as any other kind of work.

The probable growth of commercial work in extent and relative importance.

The importance of taking the commercial work in the order laid down in the course of study.

Who should be advised to pursue a commercial course in the high school?

What a four-year commercial course should contain.

The commercial course in the Township High School of Joliet, Ill.

The most important factor in determining what work shall be offered in a course of study for any secondary school is public demand, or public opinion. Teachers themselves perform a very important and highly valuable function by creating and shaping public opinion, and he who, for fear of doing something which will not meet immediate public approval, refrains from doing what he can to shape public opinion along progres-

sive educational lines, will soon find himself relegated to the "side lines" and no longer a real "part of the game." Public opinion precedes public demand, and sometimes the procedure is so rapid that the one almost antedates the other.

An examination of the records shows that in the great city of Chicago there was no demand for a public high school with any kind of course of study until about fifty years ago; while to-day public opinion will not suffer the number to decrease, but the number of schools, their equipment, their conveniences, etc., must ever go on to something greater and better.

If we will pause a moment to reckon with our school history, or rather, with the subject-matter of our course of study, and indeed the courses themselves, we find that among the earliest course of study public opinion directed that Greek, Latin, and mathematics should form almost the entire curriculum; and so rigid was this belief that one course only was open to all alike, regardless of previous condition or future career. The college took practically the same view and continued this same kind of work.

If anyone had suggested the propriety of offering a course in some kind of laboratory science such as may be found in any good high school to-day, he would have been branded as a rank species of heretic, unfit to breathe the scholastic atmosphere of that period.

By virtue of the fact that private secondary schools are not supported by public taxation, but seek to promote their welfare by some other means, there has been and is even now great effort put forth to call public attention to any new features in work or equipment not found in public high schools. It is for this reason more than any other that all subjects mentioned in school curricula to-day, especially music, drawing, manual training, commercial work, domestic science, and others outside of the three which almost entirely made up the earliest course of study have found their way into the course of study through the private institutions.

This fact means that cheap, short cuts, and that, too, for

revenue only, characterized the initial efforts in commercial education. Because of the narrowness of the earlier attempts at business education, a few courses only were offered, and these for a brief period; but this small beginning, ridiculed at first, as something foreign to any kind of culture, has been given such recognition now that a large per cent of the high schools of this country realize that this phase of education has come to stay, and have therefore established some kind of course of study.

In many places the experimental stage has not been passed, and the teacher in charge of the commercial work is simply tolerated by other departments and is looked upon as a questionable factor; but the evolution of this phase of education is going steadily on, and is proceeding much more rapidly than some of the other phases before mentioned. The immediate popularity attending the introduction of such work is never desirable, because the reaction is sure to come. The recalcitrant is an ever present trouble. The conservative pace in development is much to be preferred. The position once gained ought not to be given up.

The commercial course in any school ought to require the same effort to complete it as any other course requires. This course of study and the students pursuing it ought to have the same scholastic respect as any other company of students pursuing any other course. This course must stand for just as much training, just as much glory in its completion as any other course. The teacher in charge of this department, and the head of the school must, in large measure, be held responsible for the scholastic status of this work. After it has secured a fair recognition at the hands of all students and teachers, it will lose or gain prestige in the same way as any other department.

The timidity which characterized the introduction of this work in many places was not likely to create an air of respectability. In many high schools, in which all regular courses were four years in length, their new business course was two

years, and was modeled strictly after that in the private business school. This was a grievous mistake, because the course was at once branded as cheap, easy and fit only for such students as were mentally unable to succeed with the Latin or scientific course. It was at this stage that students looked upon the commercial course as they once did the English course; and if asked how many studies they were pursuing, they replied, "Three studies and English," meaning that English was of such little significance that, in point of difficulty it was not regarded as other studies. It was so with commercial work until the course was properly graded and arranged somewhat after the manner of other courses in school. Now wherever a good commercial course is found, its completion means that as much has been accomplished in educational value as in the completion of any other course.

Commercialism was never more intense, nor the life of a business man more strenuous than in this day and age. The demands of the age must always have consideration in the making of school curricula, and so we believe there is more reason now for magnifying and developing commercial work in the high school than there has ever been heretofore.

The old idea of culture and that alone was good, and it is good yet, but it was not, and is not all by any means. A judicious fusion of these two notions, the old and the new, and a rational application of the resultant will produce a far more satisfactory product than has yet been found in paying quantities in this country. A man may be cultured and yet keep a set of books. A graduate from the old classical course in college will make all the better teacher of stenography, typewriting, business arithmetic, etc., for having had his classical training; and he ought not to find the atmosphere any less inviting and invigorating in the second condition than it was in the first condition. George B. Cortelyou, William Loeb, and Helen Gould certainly show that culture and business training are not incompatible. We are living in an age which honors independence in the individual, and neither wealth, position, culture nor

any other qualification can take its place. The world wants workers, men and women who can take the initiative in bringing things to pass, and it is willing to pay for such service; and so the need of a broader, more careful, more helpful business training at public expense is manifest.

This public need is making itself known more and more broadly, because we find that within a few years, normal schools, colleges possessing the power to confer degrees, private academies, seminaries, etc., have introduced some kind of commercial course, and in order to meet still further this demand, four or five universities and colleges of the higher order have made what they term courses in higher commercial education.

The competition among these various institutions, conducted mainly for revenue, acts as a great sharpener and has resulted in larger courses, better teaching, better salaries for the teacher and a better product to assist in doing the country's business.

The standard of secondary commercial work has been raised greatly within the past ten years, and now in many places the commercial course is made the equal of any other course.

In my opinion it is a mistake to organize separate schools for manual training or commercial work. Education ought to be a unit. There is no more need for differentiating these subjects and forming separate schools with separate faculties, than there is for forming separate high schools for studying all kinds of foreign languages, or all kinds of mathematics and science. Commercial work, manual training, domestic science, etc., are simply phases of education, and ought to be taught in all high schools if they are taught in any. In great cities or in small cities the opportunity to take a course in manual training, commercial branches, foreign language, science, mathematics, etc., ought to be equal. But it can not be so if manual training or commercial work, etc., are put into one school building only. Segregation of subjects in secondary education is even worse than segregation of students. Almost the whole country has

announced its verdict on the latter, and it waits only a good opportunity to record its protest against the former. Congregation of teachers and subjects, not isolation, ought to be our watchword.

Manual training has been recognized, and yet in a comprehensive sense stenography, typewriting, mechanical drawing, penmanship, etc., belong to manual training and ought so to be recognized. It ought not to militate against civics, industrial history, economics, or Spanish that they happen to be placed in the commercial course.

Among the greatest stimuli which have contributed to better secondary school work, more time given to such work and to the character of the teaching in the secondary school, stands the custom of colleges in forming with the schools an accredited relationship. State inspectors of high schools everywhere testify that their work tends to rapid improvement of poor schools and to greater uniformity among the better schools. Now the business courses are so new that little, if any, recognition has been given to his work toward fulfilling college-entrance requirements. No greater stimulus could be given this work than to have the colleges recognize that it stands for just as much training as any other kind of work, and the student himself would have a more complete notion of what his course of study stands for, if such recognition were given.

We have spoken of the past and present place of commercial work, now let us examine its future. The commercial work has such a firm hold now that it will never cease to be an integral part of the course. If the high-school course is increased to five years, the business course will grow in like measure, and if, as seems probable, that when conditions warrant it, the high-school course is made to include the first two years of the college, the commercial course in high schools must increase until it includes the first two years of the course in commerce and politics. There can be little doubt that this is the present tendency, and considering the rapid progress made in this new field of education twenty years hence will find this

kind of education the safeguard of our business and commercial interests.

Under present conditions it is imperative that commercial students be required to pursue the course in the order mentioned, and so get the benefit of all auxiliary training. There is great danger in permitting too much election in the commercial course, because the inexperienced student often thinks that he has completed the entire course when he has a smattering of spelling, business forms, typewriting and bookkeeping. He forgets that English grammar, composition, modern language, commercial geography, industrial history, industrial chemistry, mathematics, etc., are the necessary concomitants of other studies. This directing of the student's work saves from the business world the raw product, and also saves the school from the charge of doing flimsy, shallow work. The student by such guidance is kept in school and grows in years and general judgment at the same time he is trying to complete the course of instruction prescribed, and so goes forth to business matured and rectified.

The question arises, touching the future of commercial work, as to who should be advised to pursue a commercial course in the high school. Often the entering student, with or without parental advice, has decided this question for himself; but generally it must be settled after the youth comes to the high school. We have answered the question in this way: (1) All students whose parents expect that their formal scholastic education will end with the high-school course, because this course contains more that is immediately usable than any other course; (2) those who are in doubt as to their future career but are sure they cannot, for financial reasons attend any higher institution of learning; (3) all who have natural inclinations toward a business career, and are restless to begin the more strenuous duties of life; (4) all who don't know what they want and can't be persuaded to take any other course.

What should such a four-year commercial course contain in

general? (1) Enough English to enable a student to read intelligently the best literature in the language; (2) enough composition and rhetoric to insure the student's saying briefly and pointedly what he intends to convey; (3) enough penmanship to enable a student to write rapidly and legibly any business task that may be set; (4) enough arithmetic to enable the student to perform quickly and accurately the operations met in any ordinary business; (5) enough algebra and geometry to create a taste for study of somewhat more mathematics than the average business requires, and to provide some surplus mental discipline before real business work begins; (6) enough commercial geography and industrial history to open the mind of the student to the fact that neither commerce nor industry comes by accident, and hence the importance of going to the sources for our information; (7) enough of civics, economics, and business law to make the student see the necessity of having a broad knowledge of men and their dealings with one-another; (8) enough of modern language to enable the student to conduct a foreign correspondence in at least one of the three modern languages, with a good reading knowledge of another; (9) enough laboratory science in each year of the course to train the student to see and classify at a glance; (10) enough bookkeeping, stenography and typewriting to enable the student to perform easily the ordinary demands made upon graduates in such subjects. Such a course may be mastered by a good student in four years, and the average student will have completed such work at or near the age of eighteen years.

No one can realize more keenly than the employer of commercial students, the need of all the auxiliary work mentioned, because general information in such work is becoming more and more necessary in order to command and retain the best positions. Added to this significant fact is its corollary that if a fairly intelligent young man or woman take the training offered by such a four-year course, the strength and breadth of

judgment which comes with years abundantly repays the effort of waiting.

We have attempted to tell briefly what place commercial work had, has, and is to have in the high-school curriculum. We insert here the Commercial Course in the Township High School at Joliet, Ill.

First year.—English; commercial arithmetic and spelling; algebra; physiography.

Second year.—English (rhetoric and composition); European history; commercial geography and mechanical drawing; plane geometry.

Third year.—German, French or Spanish; bookkeeping and office practice; business law and civics; physics.

Fourth year.—Typewriting, stenography and letter writing; political economy or American history; German, French or Spanish; industrial chemistry and physiology.

Any one may secure a copy of this course of study by addressing the writer.

THE PRESENT STATUS AND FUTURE OF MANUAL TRAINING IN THE HIGH SCHOOL

BY
GILBERT R. MORRISON

The William McKinley High School, St. Louis, Mo.

SYNOPSIS.

Universality of the manual-training idea as shown by the Louisiana Purchase Exposition at St. Louis.

Past expositions show manual training as one of the world's influences.

Universal neglect of fundamental principles of education has been one cause of the rise of manual training.

Manual training is the logical outcome of the teaching of Comenius. Comenius gives the mechanic as illustrating correct methods of teaching.

Similarity of the scientific and manual-training influence.

The Russian plan is generally followed and generally successful.

Distinction between "constructive work" and "mechanic arts," and the appropriateness of the latter for high schools.

Importance of the shop teacher. The dearth of shop teachers.

Effect of recent criticisms in degenerating the mechanic arts.

The new art movement—its influence on the mechanic arts. Great advance in methods of teaching art. Its adaptation to the grades. Over-reaching of the art influence.

Misconception of the true function of art.

True relation between utility, skill and beauty.

Short time given to mechanic arts necessitates close attention to mechanical requirements. Attention to essentials.

All subjects primarily vocational and incidentally cultural.

Artificial distinctions between vocational and cultural studies. All studies at first considered vocational. When a study ceases to be studied for use, it ceases to be valuable for culture.

The trade school—its relation to the mechanic arts in high schools. Danger of over-refinement. How to supply present demands for manual training teachers.

Too much expected of manual training. Its proper sphere and function.

Necessity of extending manual training to needs of boys not taking full academic course. Pre-conceived standards are yielding to more flexible ones.

One of the most obvious and impressive facts bearing on the whole matter of manual training in the schools was set forth and revealed to the world at the Louisiana Purchase Ex-

position at St. Louis, last summer. The fact is simple and will be admitted by all without argument. It is this: Manual training in the schools of all the countries in the world has become universal. No town in any country represented in that vast array of the world's best work undertook to make an exhibit without a display of handicraft of some sort. This does not mean that every school in the world has manual training, for there are many still without it, but it does mean that every town and city taken as a unit has accepted it.

Universal expositions reveal world tendencies and this is strikingly true in the case of manual training. The International Exposition of 1851 at the Crystal Palace marked the beginning of a movement in industrial education—education through the executive functions—that has culminated in a world movement exhibited at the Louisiana Purchase Exposition in 1904 at St. Louis. France had taken first place in the markets of the world for the beauty and finish of her manufactured articles. At the exposition of 1851 the cause of this excellence was revealed. An exhibition of the work of her schools showing great accomplishments in the line of industrial education set other countries to thinking. All the leading countries of Europe immediately took the cue and proceeded to make technical education a leading feature in their schools. This was done not as a matter of theory or sentiment, but as a necessity. Each country recognized that in order to hold its place in the markets of the world it must look after the education in skill and the executive functions of its youth.

Germany began early, perhaps, in a small way even before France, but it was not till the Paris Exposition of 1867 that Germany began to show to the world her rapid progress; and at the Vienna Exposition of 1873 her exhibit, according to the best information I can obtain, excelled all others.

An exhibition at St. Petersburg marks Russia as occupying an important place in this movement. It was here that Victor Della Vos first exhibited the system of tool practice that has formed the ground work of manual-training schools since that

time. This system, usually known as the Russian system, was first exhibited in this country at the Centennial Exposition at Philadelphia in 1876. It was the first attempt at giving instruction and practice in the principles underlying the various mechanical trades without teaching trades as such. Four years later the St. Louis Manual Training School was opened for boys.

The growth of manual training since that time is a matter of common knowledge. It has been a period of advocacy, of strenuous controversy, of school house building and of the gradual expansion of the manual-training idea until there is at the present time none to oppose it. The arguments for the educational and practical value of manual training have done their work and are known to everybody. It is no longer necessary to repeat, or renew these arguments. The conditions which made them necessary have passed. The problem about manual training, with which we now have to deal is of an entirely different character. But before proceeding directly to the consideration of this problem it will be necessary to speak of certain things which gave rise to the movement. This I shall do, not from any desire to criticise past or present conditions, but because our present problem can not be fully comprehended without firmly holding in mind underlying principles which are fundamental. I almost feel like apologizing for referring to these fundamentals, but there is no escaping it. In solving any problem we must go back and review first principles as often as we forget them. The problem before us is no exception.

The fundamental principles of education were laid down by Comenius more than three hundred years ago. But notwithstanding that they were echoed and re-echoed by Bacon, Milton, Locke, Rousseau, Froebel and a host of others, they had and still have to a large extent been forgotten or ignored by those who have taken the lead in educational matters since that time.

These principles are too well known to require repeating here. I shall only quote one of them. It is as follows: "Things to be done should be done by doing." "Mechanics," Comenius says, "understand this well; they do not give the apprentice a lecture upon their trade, but they let him see how they, as masters, do; then they place the tool in his hands and teach him to use it." Thus we see that Comenius selected the mechanic as typifying in his teaching the soul of the true method. The method is of course applicable to other subjects than mechanics, but the teachers of other subjects do not employ it.

The teaching in the schools became stale, lifeless, formal, bookish and impractical; it lacked life and virility and did not meet the demands of a progressing world. The general subconsciousness of this condition at last found expression through representative men in the various fields of educational thought.

It is not necessary to revive old arguments or to reopen closed controversies, but it is important to bear in mind the conditions out of which this universal acceptance of the manual-training idea has grown. Briefly, these conditions were: (1) Educational practice had departed from the fundamental principles of education—from the laws of acquisition. (2) It was necessary to return to these principles in order to meet purely educational requirements. (3) It was necessary to return to them in order to save the nations from commercial and industrial degeneracy; and all countries took up the movement and entered the competition.

The first of these conditions leads us to the consideration of manual training as a subject or branch of educational practice as appropriate to exemplify and revive the practical application of the laws of acquisition. In selecting the mechanic and his apprentice as illustrating the co-ordination of theory and practice, Comenius intimated an educational agency which would not only illustrate the principle, but would at the same time, if actually introduced into the schools, serve as a persistent, active

agency in exemplifying proper methods—an agency which would be in least danger of relapsing into a stereotyped formality.

Modern methods of teaching science have done much to reclaim lost arts in teaching, and manual training has done, and is doing much in exactly the same way. All that has been done since the Centennial Exposition in 1876 toward the introduction of manual training into the schools is justified on purely educational grounds apart from practical or utilitarian considerations. The Russian plan of teaching the principles and practice of construction through the study and manufacture of a series of exercises in regular sequence has been pursued since its introduction for the avowed purpose of general education as distinguished from trade education. It has been persistently held by every practical director of manual-training schools that trades are not taught, but the principles common to all trades are inculcated, and at the same time illustrated practically in the workshop. It has always been strenuously urged that the boys in these school shops are learning the nature of the materials upon which they work, and the processes by which articles of value are made through mechanical skill and art. The practical value of this work has always been freely acknowledged but its full justification has always been sought in its educational value *per se*. I believe the results in most cases of these schools have justified the claim, not only that they furnish a general training in skill of hand, in accuracy, in judgment, but that they have contributed life, sanity and virility in method and purpose to the academic subjects.

The value of this work and the truth of the claims which have been urged for it is proved by the growth, the popularity and the excellence of manual-training schools everywhere.

The success of these schools has been due in large measure to the qualifications of shop teachers who have been selected to teach in these schools and their peculiar fitness to carry out in a practical and efficient manner the requirements of theory and practice of mechanical construction. I mean by mechanical

construction as distinguished from constructive work in general, the intelligent practice in the use of tools which has been evolved by civilized man since the time he left the constructive work of building wigwams and began the mechanical work of building houses. The manipulation of a tool for constructive ends as distinguished from the crude constructive work of animals and savages has a special and a peculiar value which the evolution of ages has given to it. This value is imparted to a class of boys by a skilled mechanic, and it can not be imparted by anybody else. And I mean by a skilled mechanic a man who exemplifies in his own work the best theory and the best practice—a man who puts tools to their latest and best uses in the construction of typical forms.

The importance of the shop teacher is so vital to this whole question that I must dwell upon him a little further at this point. His importance increases as we shall leave the purely educational side of manual training and approach the economic side a little further on.

With the universal acceptance of the manual-training idea there have not come shop teachers in sufficient numbers to supply the demand. This is probably due in large measure to the tardy recognition of the relative value of this teacher. Salaries have not tempted competent men to prepare for a service which offered less than other professions requiring like ability. As a consequence there were not teachers enough properly fitted for the work to supply the needs of the schools as fast as the people were willing to build them. We were left in the possession of an idea without the adequate means of executing it.

Along with this dearth of shop teachers there arose a feeling excited by certain critical writers that while the value of manual training is acknowledged, the form of it in vogue in the schools is of questionable value; that it was becoming too mechanical, that it was not artistic, that the students' exercises were not useful, and that the work was therefore not inter-

esting to the pupils. These criticisms, it should be said, have been offered in a literary rather than in a scientific spirit.

Whether the dearth of shop teachers and a surplus of this literature have any causal connection, the result has been that the shop practice has, in many instances, been so modified as to require only such work as could be done by amateurs and mere tinkers from a mechanical point of view. Mechanic art as such fell into disrepute (temporarily it is to be hoped) and a species of "jack-straw" work was advocated and held to be superior on the ground of its "personal interest," its "usefulness," and its "artistic merit." This condition was strikingly illustrated at the World's Fair exhibit. This influence permeated at least half of the exhibits displayed there—exhibits of trifling objects of "utility" put together without the exercise of much care as to their mechanical value, and tatooed with a burning iron to give them "artistic" significance.

The cause of this temporary degeneracy in the mechanic arts may, in part, be attributed to the overreaching of another influence on which it is proper here to dwell briefly in order better to understand the unrest and chaos into which the minds of some of our shop teachers have recently been thrown.

Along with the growth of the manual-training idea there has been a movement amounting almost to a revolution in the methods of teaching art. In the place of the formal method of teaching drawing by rules, and by teachers regardless of their qualifications for this work there was substituted the artist who carried to it something of reality—some of the spirit of art and truth. Drawing became a means of expression and industrial art took the place of much of the thoughtless copying of classic abstractions. This spirit branched out and expanded in many directions. Adapted to the different grades and the varying ages and capacities of children it appeared as color work, still-life drawing, designing, modelling, decorating, and the various forms of construction work of a non-mechanical character. This movement has done much for the children of the grades in giving them partial relief from that process

of word learning which was so much overdone in the schools of twenty years ago. In placing the children under the influence of this work they draw their elements and units of design sometimes from nature and sometimes from the art and handicraft of the Indians and other primitive peoples.

It seems proper that this work should be given to the children of the primary schools. They are of an age which corresponds to that of the race and to that form of civilization preceding the mechanical. It cultivates the taste, the imagination, and exercises the co-ordinating power between the hand and the head. The spirit of this new art movement has taken absolute possession of the schools in some of our leading cities, and it will perhaps have to be admitted that like other good things long delayed and finally under way it is being somewhat overdone. This is especially true in its attempted application to or substitution for the mechanic arts.

This movement, in the ecstasy of its new being, finds expression in sayings like these: "Teach the beautiful, the useful will take care of itself." "It is not so much to make beautiful things as to make things beautiful." "Work without art is brutality." These phrases sound well, and properly interpreted convey certain truths; but as they have been employed to depreciate and belittle certain essentials and processes not in themselves related to art as a conception, they have done their share of mischief in beclouding and obstructing progress, and in diverting the attention from the larger significance of manual training. It is, of course, admitted that the artistic spirit pervades all good work taken in its aggregate. But it can not be admitted that all processes in mental or constructional acquisition can be accompanied by art at the time they are performing their true educational function.

There is, for example, nothing artistic in the art of finding the proper tense forms of a verb in the study of Latin. In demonstrating a difficult proposition in geometry there would be nothing gained by designating the angles by conventionalized clover leaves instead of by letters and figures. It is plain

that there would be a positive loss, because here the all-important thing is the following of the process of the demonstration. Neither has it ever been thought necessary for the student to demonstrate a proposition for the purpose of playing with it or of putting it to immediate use. In illustrating the parallelogram of forces to a class in physics, there would be nothing gained by constructing the diagram with colored chalk beautifully shaded. It is obvious that such a proceeding would not only be a waste of time but would divert the mind from the all-important thing—the mental process. Art enthusiasm has not taken such liberties with the academic processes in education. Why should it do so with the processes in mechanic arts? The process of making a perfect joint is as absorbing and as cultural in its own special way as is the process of mathematical, syntactical or physical analysis, and why should it be thought necessary to consider the one "brutality" and the others "discipline?" Such expressions all come from a misconception of the real nature and purpose of manual training when it has reached the plane of mechanic arts in the high school, and this misconception has wrought a serious hindrance to the proper shaping and normal growth of this agency as an educational factor in our schools.

In the foregoing, enough has been said directly, or by implication, in defense of the manual-training exercises as they have been employed and have served to give pupils practice in the mechanic arts in our best high schools. These exercises have served a good purpose and still might continue to do so even in the form first employed by Victor Della Vos. But there are men at work in the shops of some of our best high schools with a serious purpose directed toward the improvement of these exercises.

These efforts are being made in answer to these questions: (1) Can an additional value of utility in the thing made be included in the exercise? Can the exercises be made to consist of some useful thing? (2) Can the form of these useful things be so designed and wrought as to answer the legitimate re-

quirements of art? (3) Can this be done without interfering with that sequence in tool practice which is necessary to the development of mechanical skill?

From experiments of this nature which are now being carried on there is some reason to believe that this, to some extent, may be realized. The style of work known as "Arts and Crafts" which is a return to simplicity and truth in mechanical construction and which has come to us through the influence of the work of William Morris and others, seems to furnish a clue to the situation. Articles made after this style, while simple in construction and artistic in form and proportion, require the most rigid application of mechanical principles and are best made by the intelligent use of the best tools. In an "Arts and Crafts" table, for example, all the elements and processes are revealed in the finished product. The through mortise and keyed tenon call for the most genuine workmanship. Here the beauty is in the workmanship. It is its truth, its mechanical genuineness which gives it its value—its beauty. In the making of such a table the assembling of its four sides calls for a greater accuracy of construction than is required in making a single union of mortise and tenon, for it is in the assembling of parts that the defects and inaccuracies are revealed. It seems to me that such a table, well made, would be proof enough that a pupil had mastered the principles and practice of joinery, for it contains most of the elements of the Russian exercises.

I have just witnessed with the keenest interest and satisfaction the completion of such a table by two boys. The boys selected for the experiment were the best in a class of twenty-four. The results are instructive from several standpoints. First, from that of the time required which was almost equal to that given to the whole joinery course, they being allowed to work overtime and during outside hours. Second, from the skill it was necessary to have before beginning the work in order not to waste material. They spoiled one or two pieces as it was. Third, the pride and intense interest they took during the process. Fourth, the excellence of the quality of the work

when completed and the confidence and sense of power they enjoyed at the finish. None of their pleasure in this case came from ownership in the thing made for it was to be the property of the school. The consciousness of skill and power was their reward.

From the first of these results, it seems plain that the time usually given to manual training is too short to accomplish a finished product that will be worth anything as an educational exercise, with the exception of the very best and most active students. It may be noted here, however, that during the construction of this table the other boys in the class were working on a small model exercise of a table leg with entering rails, and their interest in their own exercise seemed increased rather than diminished by what the two boys were doing on the large table. It enabled them better to see the real purpose of their exercise and what it would lead them to.

From the second result it is plain that much practice on small exercises is necessary in learning the use of tools and the elementary processes before putting beginners to wasting large pieces of "stock" which would result without such practice.

The third result is important. Boys take a genuine interest in things that are really essential. And the essential thing here is the power to do things as men do them. The power to use a tool as a mechanic uses it is a real accomplishment at once recognized and appreciated by the average boy. This accomplishment is capital which has a real value not only as an educational force but one which is recognized by the mechanical and commercial world. A great mistake is being made by schools which are keeping boys occupied on mere tinkering that will never count for anything either as education or as utility.

Thus far I have considered the educational aspects of manual training. I now pass to its so-called economic or vocational aspects. This I do more for the purpose of calling attention to the artificial distinction which is often made between culture studies and vocational studies than for the purpose of perpetu-

ating this distinction by treating these subjects under separate heads.

In thinking of this question we often lose sight of the fact that all school studies are vocational and had their origin in the course from purely economic considerations. The first schools for higher education in this country were for preparing young men for the ministry and the curriculum was planned with that end in view. Greek and Latin were placed in the course because a minister was supposed to need them in his business. They were purely vocational. The Boston Latin School was established in 1635. In a school document the vocational character of this school is clearly defined: "It prepares boys for college. Thence they go out to follow the professions of divinity, law, and medicine."—School Document No. 15, 1889. The subjects were chosen with special reference to their practical value to the students preparing for these vocations. They were vocational studies. The universally recognized vocational character of the ordinary school studies has placed them in every school curriculum of the past regardless of the specific purpose of the school. Even in the trade schools the vocational character of the common school branches is assumed.

One or two examples will be sufficient to illustrate this fact. In the famous school of Watch Manufacture at Besançon, France, the course of study includes "everything bearing upon the work, such as arithmetic, mensuration, geography, mechanical drawing, geometry and composition." These studies are selected solely for their vocational value as much as is the tool work in the shops of this great school. Attached to the great printing house of Messeurs. Chaix et Compagnie, in Paris, there is a school for the education of the printers. Two hours a day are allotted to lessons in the schoolroom which is contiguous to the workshop. The course includes "grammar, and composition, arithmetic, reading of proofs, the study of types, engraving, and the reading and composing of English, German, Latin and Greek as far as to qualify for type setting,"

and a variety of other studies chiefly having a bearing upon the business of printing.

The diversity of courses of studies in colleges and schools in all places and at all times indicates that different people need different things as they will occupy this or that station, or will choose this or the other vocation. The theory that some studies are for use and others for culture probably originated among school teachers who wished to secure students. This notion persists even now, but it is seldom acted upon by those who are free to choose for themselves. All studies found their places in school curricula because they were useful to some vocations. Manual training is vocational as other studies are vocational. If properly taught it is directly useful to some vocations and indirectly useful to others. The same may be said of Greek, Latin, mathematics and music.

If it be contended that music is better than mechanics for a person who does not expect to follow either as a vocation, it may be answered that it would depend almost wholly on the tastes and powers of the individual. As a cultural accomplishment certainly none served to better advantage in studying the World's Fair than did a knowledge of practical mechanics. Of course, it goes without saying that it would be exceedingly desirable if one could learn everything, but as this is becoming more and more impossible, each and all must pursue those subjects that relate to their particular vocation. As everybody does this anyway the only apology which I make for the statement lies in the curious fact that educators are continually making the theoretical distinction between "cultural" and "vocational" subjects. The only subjects which are absolutely and necessarily common to all are the three R's.

I shall now state a proposition which will not receive universal assent, but which is, I believe, gaining ground in the minds of practical teachers. This proposition will clear the ground and open the way for a rational treatment of the present status of manual training in the high school and for consideration of its future.

The proposition is this: *When a subject ceases to be studied for use, it ceases to be valuable for culture.* I mean by use the power necessary to employ the thing learned as it was originally employed. If a language, as a medium of communication; if mathematics, as a means of actual measurement of quantity; if the mechanic arts, as power to construct according to the laws of mechanical construction and the best practice of mechanics.

When German and French were first introduced into the schools they were intended to be taught as vehicles of thought between these nationalities and not as mere media through which the laws of syntax and the rules of grammar might be illustrated and applied. When these languages can be used as vehicles of thought they become real culture studies, but the grammar and translation methods of learning them is beginning to be believed to be almost useless either as culture or as use; and a reaction is taking place toward a more direct method. When mathematics had its beginning, it was treated as a means to the measurement of quantity; it dwindled into mere abstraction and the manipulation of symbols and formulæ. A reaction is also taking place toward concrete methods of teaching it. As all school subjects have thus suffered at the hands of impractical teachers—have been allowed to drift away from their real function into “culture” studies, it is not surprising that manual training should suffer a similar fate. We see this tendency in the present movement to remove the real, the characteristic element—the purely mechanical quality—and substitute in its place a mere sentiment in the form of trinkets put together in the name of art, but devoid of the first principles of art, which, when applied to construction must be based on utility and truth as shown by work revealing strength and purpose and adaptation in the arts of machine building and architecture.

Manual training, like other subjects, had its origin in purely utilitarian motives. The first schools were strictly trade schools and had no conscious purpose beyond that of fitting the boy

for his future vocation. Of course, the cultural value was present as it was with the academic branches which were pursued along with the manual training—present, I believe, in truth rather than in mere name. The students from these schools rise above the common laborer and the unskilled workman and take their places among those most worthy to be honored—those who do the work that the world wants done.

Good results from manual training have come from the trade schools, because it is here that the work is directed to a purpose, and this purpose calls for the employment of tools as skilled mechanics use them; because it is here that true culture, the power to do, is made possible by the use of tools and machinery in their latest and most evolved forms—forms employed by mechanics. The progress which has been made in Europe along these lines has come almost entirely through the technical and trade schools established for the purpose of fitting boys for a vocation.

But I am not advocating that the trade school take the place of our manual training in our American high schools, although if I were to close this paper here, it would appear so. *But I am advocating that the work in our manual-training high schools should be done as mechanics do it; i. e., the process employed should be the processes employed by mechanics.* If this is not preserved in our high schools the work will degenerate into a mere tinkering, possessing neither culture nor utility. The work in the schools of America must be such as to fit the boy to use what he has learned in a way that will command the respect of a practical mechanic and possess that sturdy and substantial quality which can be utilized in securing employment. This power to do, even if by chance his lot casts him into unrelated pursuits, he will still possess as culture, as reserve power—power which does not come at all in the making of tops and whistles and childish trinkets.

We are in danger of weakening manual training in our high schools by an effeminate over-refinement, and by a fear that our workshops will be regarded by somebody as coarse

and unrefined. This fear has led in some places to calling them "mechanical laboratories" instead of shops. Of course we all know that they are really laboratories in which the principles of mechanics are taught and applied in a way different from that which an apprentice boy picks up in a commercial shop, but to all intents and purposes these school work-rooms are shops in which the work is pursued in the true workman-like spirit. The name shop should be retained because it conveys to the common people a definite idea of something tangible—an idea of a preparation for life's duties.

I can not share the fear of those who believe that there is danger of our shops becoming too practical—too much like real workshops. On the contrary, I would make them as near like real shops as possible, and through skilled mechanics as teachers make use of the latest processes used by the latest and best practice. These processes are secured through exercises and the manufacture of projects adapted to the capacity of the student. If possible, these teachers should be technically and broadly educated as many of them are. But above all things the shop teacher should be a practical man, a man who can command the respect of boys through his tools and his manner of using them.

Again let me emphasize the necessity of in some way meeting this enormous demand for the right kind of shop teacher. The success of manual training in this country depends upon it. It is plain that if there are not men enough to do the work as it should be done, then the work itself will be modified to a form which can be done by the unfit—the mechanically incompetent.

The greatest danger to manual training comes from an idea in the minds of many that manual training must do everything and contain everything. It is an important and indispensable element in our schools but it has its own special value. Its function is to keep our youth from drifting too far away from the industries of daily life, and to make their preparation for them in the best possible manner.

To those who would have the workshop possess all the

educational qualities represented by the whole curriculum. Let me say that if the shop represented the whole of the boy's education and employed all of his time there would be just grounds for concern: but this is not the case. In reality the workshop at most can occupy only a very small portion of his time and it therefore seems to me important that this time be spent under an influence that will supplement rather than repeat the peculiar and more or less abstract and refined influences of the other departments in the school. Much as I would wish to see in the shop teacher, an artist, a thorough scholar and a finished musician, if all these things were possible; much as I would like to see our school shops possess all the combined influences of artistic, academic and musical influences—such a wish is manifestly absurd. All these influences stand for what they are and are valuable as necessary elements which make a complete and all-sided whole. So should it be with manual training. Let it stand for what it is, the necessary, fundamental influence in shaping the boy's education for a practical, sane, intelligent, industrial life.

So important is this sturdy mechanical influence to a boy's training that I firmly believe if he could spend a part of his time while taking his course of regular studies, even in a common commercial workshop with real workmen, it would be better, far better, for his education and training as a whole than is the piddling jack-straw work that is sure to be done in schools employing non-mechanical teachers.

This is of so much importance to the future success of manual training in this country as almost to justify the suggestion that the present dearth of shop teachers might, if necessary, be bridged over by intelligent practical mechanics, even though they be somewhat deficient in book-learning. Such men in the shops might perhaps require the more frequent presence of the principal or intelligent assistants to guard against that crudeness of speech and want of the proper moral and intellectual influence which might otherwise result. That such a suggestion should be necessary at this time is to be deplored and it

may, I fear, although offered as a mere suggestion, seem like heresy to my fellow believers in high ideals in manual training. But let it be remembered that "it is a condition and not a theory" that we now have to face—the condition of meeting the universal demand for the mechanical element in our schools. This condition must be met. The expectations which the activity of the past decade has aroused must not be disappointed. The bridge we now have to construct over the inadequate and real present to the adequate and ideal future, if it can not from a lack of skilled teachers be built on scientific and artistic lines in all its parts, it must at least be built strong, rugged and practical, giving those who are passing over it a feeling of safety, if not of complete aesthetic satisfaction. In closing this paper I shall try to point out a condition in our schools which it seems to me right and reasonable to hope for in this country—a condition which is already being partially realized in a very few places.

In the most evolved type of modern high schools, there is nothing in the name to indicate that manual training is in the curriculum, yet these schools have an equipment in manual training for both boys and girls surpassing that of earlier "Manual Training High Schools" so called. This equipment has taken its place naturally as has that of science laboratories, as an essential and integral part of the high school. While "Manual Training" has disappeared from the name, the equipment for this work has been increased and improved. The tools and machinery are of the latest design and call for teachers skilled in practical and theoretical mechanics. The Art departments are conducted on industrial as well as artistic lines and correlate closely with the shops in suggesting appropriate designs. These schools contain all the academic branches; and an elective plan from groups of studies enables a pupil to select a course adapted to his wishes and his future needs.

In the shops these things are held to be essential and in the following order: 1. The utility of the exercise or the thing made. 2. Good workmanship. 3. Beauty in construction.

The usefulness of the thing made may mean that it may be of immediate use, as a piece of furniture, a lamp stand, a pair of andirons, or a jack screw; or it may mean an exercise into which a boy has put his best efforts in expressing the correct elements of mechanical construction, the further usefulness of which will afterwards be realized in every piece of mechanical work he will ever do.

The short time which, at best, can be given to shop work will not enable all boys to realize finished products in the shape of usable articles, except of the simplest kind, but this time if spent rightly will make even the slow boy's work in the proper use of his tools respectable in the eyes of practical people. A boy who can finish one mortise and tenon joint and make it well will be more proud of it than he would be of a finished trinket which he could buy at a ten cent store. Boys like to work "man-fashion" and by making the work robust and real from a mechanical point of view the introduction of manual training is justified and appreciated by the people who are sending their children to school to prepare for life's responsibilities. Finished products are realized by some of the pupils who are stronger and faster than others and these stand as models to show even the slower ones the real nature of the work, and the direction toward which it is tending.

The second essential, good workmanship, can be realized in a boy's exercise, be it ever so little; it may consist in the proper use of his tools and the mastery of the elementary processes of mechanical construction; or it may go further in a stronger boy and appear in a well made piece of furniture or a piece of machinery; but be it finished or unfinished, it must be in the right direction as far as it has proceeded—a direction which counts for something considered either from a cultural or from an economic standpoint. It must demonstrate power to do—power to use the tool as an evolved civilizing agency.

The third essential, that of beauty in form and proportion is important. Good designs are constantly placed before the students and they are encouraged to make original ones. Many

boys make fairly creditable designs of simple orders, after the suggestion has been given them. In the planning of a useful article by those who in the short time which can be given to this work get ready for it, careful attention is given to form and proportion. The teacher supplies that which the pupil would fail to do if left to himself. This he may do by suggestion or by furnishing the whole design according to the ability of the pupil. All pupils can not be treated in the same way. No time is spent in surface decoration before the elementary processes of construction have been pretty well mastered.

Manual training in the high schools should be open to those who want it. It should not be forced upon those who do not want it; and there is a growing feeling that this should be the case with many other high-school studies which are at present made obligatory.

The manual-training high school of the future will probably extend its usefulness by providing special work of a more intensive character for those who are especially adapted to mechanical pursuits and who show very poor ability in academic lines. The high school of the present has not provided this work for boys who are unable to take the full academic course. The result is that it often happens that the boys who want manual training and who need it most are forced to leave school on account of inability in other lines. The true function of the public high school is to find every boy of high school age and keep him at his best during the high-school period. Pre-conceived standards of scholarship have their uses, but they should not be allowed to stand between the real teacher and the real boy as the teacher finds him.

[The course of study that follows is worthy of careful study. It is especially advantageous because the vocational courses can be seen in their relation to the whole.—Ed.]

PREPARED BY **GILBERT E. MORRISON.** **1905**

THE PRESENT STATUS AND FUTURE DEVELOPMENT OF DOMESTIC SCIENCE COURSES IN THE HIGH SCHOOL

ELLEN H. RICHARDS
Massachusetts Institute of Technology

SYNOPSIS

Subjects of *social* value must be given in the *elementary* school in such a way as to secure valuable habits and manipulative skill.

Development of reasoning power, and application of science belong in the high school.

Principles and relations should receive special attention in colleges.

Practice again belongs in professional and post-college schools.

Domestic science in the high school should concern itself enough with the working machine of productive daily life (social and economic questions in an elementary way to be sure) to leave an impression of forceful reality.

It should not be burdened with the work of other departments and especially it should not be expected to *lay its own foundation*, a thing not required of other high school subjects.

In elementary and secondary schools, we claim that education should produce:

Social efficiency, character as expressed by truth, honor, self-sacrifice and co-operation.

Economic efficiency, self-support, not a social debtor, adding to group possessions and pleasures, a productive citizen of the state.

Individual efficiency, personal health, joy in living, contributing, in self and children, to race progress. For the individual, better physical condition for work and for pleasure. For the state, it should result in securing for the child such environment and atmosphere as shall permit full intellectual and spiritual development of the soul.

A good course in domestic science can contribute largely to the production of these educational results.

The teaching of science in the high school has suffered because of the tradition prevailing since the organization of the English High School of Boston in 1821, "that it is required of all the masters and ushers as a necessary qualification that they should have been regularly educated at some university."

The attitude of the university man toward science and particularly toward those branches of science which have to do with the activity of daily life is not an attitude adapted to make him a good judge of or a good teacher of those sciences which deal with "*the great end and real business of living*" which was the avowed object of the first chartered academy in New England—Philips Andover. The high school as we know it, while the successor of the academy in many directions has not yet obtained full emancipation from the college influence, since its courses and the method of dealing with many of its subjects are to a great degree controlled by university ideals through the college men on its staff.

We shall not see the full development of science teaching in the high school, and of all that depends upon it, until the teachers are those trained in scientific rather than in academic ideals.

If by high school we understand a truly higher education, complete in itself as far as it goes, but yet a safe foundation for college and university work for those who can go on, then a form of applied art and science is imperative for the rounding out of a course which is to teach the human being something of his environment, to teach the laws under which he lives and to lead him to appreciate the power which is his to use as soon as he is worthy.

In the high school should begin the application of such sciences as have been learned, which may be continued into the college, or which may serve as a basis for future building upon in the course of the life work.

The high school has ever been "near to the people" in the endeavor to make the years and money spent effective. It has been at times more plastic than any other form of education, more readily molded to the need of the time. This is shown by the rapid introduction of laboratories and laboratory methods and by the engraving of business and commercial subjects upon the curriculum. And yet each study which tends toward "*the great end and real business of living*" has been through

the ordeal of college entrance requirement successfully passed, such as geography, which was first required at Harvard in 1807, algebra in 1824, ancient history in 1847.

Let it be granted that the theory on which the American high school is to be developed in the twentieth century is not yet clearly defined. We see two tendencies, the one fostered by the academic ideal as set forth by college entrance boards "to emphasize the psychology of the individual" and to articulate the work with the college. The other to meet the demands of civilized and progressive society as it exists, by a differentiation which shall give restricted freedom of choice to the pupils. This differentiation has been, perhaps, most marked of late in the subject of manual training. But it has resulted in cleavage rather than in articulation. Because the great body of school men have had no training in and do not understand the power and purpose of manual training, it has been found best to develop it in separate schools in such communities as are large enough to support two or more high schools, under teachers who believe in the invigorating intellectual effect of "an intelligent mastery of tools, materials and methods of construction," and in the fully proved pedagogic value of this stimulus of power over things.

Because of the opposition of the academic mind to the introduction of manual training, it was put in under the lead of those who were most strongly impressed with its practical value. It could not be properly correlated in the ordinary school, because the opposition presented a solid front. Only recently have wedges been driven into the slowly crumbling walls of prejudice, so that now a possibility of using the subject to stimulate all pupils, whether fitting for college or for life, is in sight. Domestic science has been in an even worse plight. Repudiated by manual training, and scorned by academic learning, it has made its way by sheer force of proved value. It has come to stay, and we may as well take up the task of adjusting the relation it should bear.

It may be acknowledged at the outset that much, if not

most, of the domestic science now taught in high schools, especially when it is found in them only, is *grade work*—mere accumulation of facts and mere manipulation—with perhaps an attempt at introducing fundamental science because in no other course is it found; or, more is the pity, because the curriculum demands that the domestic science be given *before* the fundamental science courses are taken. That is, the makers of the high school program do not recognize domestic science as an *application* of scientific knowledge *previously attained*, do not give it the place of a king bolt to hold together the previously accumulated parts of the curriculum.

Furthermore, because the science teacher could not or would not help to correlate the various branches, the teacher of domestic science has been obliged to give both the elementary science and the application of it to the detriment of the subject itself and to its estimation by the public. The time given has not been sufficient, the knowledge of the dozen sciences required as a foundation has not been deep enough on the part of the teacher; she has not dared to say "I do not know;" and therefore the better grounded physics and chemistry teacher has had reason to repudiate the claims made to scientific presentation of domestic science.

On the other hand, because of this forcing of the science teaching into imperfectly prepared hands, the work intruded into the high-school curriculum under the head of domestic science has been too often not only unscientific but has lacked any basis of science.

If the high school were a trade school, dealing with results, not principles, then the practice might be accepted without the theory. A typewriter is not required to learn the mathematical formulae upon which the mechanical construction of his machine depends. Why should a girl learn how to calculate a standard dietary? If she is to be a cook she should not spend time for it. But if she is to become an intelligent citizen, serving not only her own family but on charity and hospital boards,

she needs the knowledge, and more than all, she needs the intellectual grasp of affairs which her mind gains in the process.

The terms science and art have been sadly confused. Because a Vermont Yankee or a southern mammy, by reason of long years of skilled labor and a love of good living, can make a score of dishes of exquisite flavor and consistency, it is held by many school men unnecessary and unpedagogical to teach the composition and nutritive properties of food and the scientific principles which underlie its proper preparation. The high school does not and should not make cooks, it should make girls into intelligent women, intelligent in every day matters as well as in ancient history. The public has insisted upon the skill which only comes with the long practice of a trade, *i. e.*, an art. Between the three, the science teacher, the pedagogue, and the public, the director of domestic science has been driven to offer a course which is either science or art in spots. She must include much which has no science, but which is only method of procedure, order or acknowledged way of doing things. This is because public ignorance has insisted that work which has no science at bottom shall be called by that attractive title.

There are correct ways (good form) of wearing a hat, of serving a meal, of paring an apple, of toasting bread; but although there may be a better, there is no right or wrong way. It is the result which is to be considered and this is arrived at by several methods. There is a right way to set up an electric battery but not to sweep a room. Did two milliners or dress-makers or cooks ever accomplish results in the same way?

It is the insistence on good form in place of science, on the art rather than on the knowledge of principles which has brought so much of the household arts teaching into disrepute among scientific men and academic leaders.

Is there then neither science nor education in the group of subjects known as domestic science? Indeed there is much of both if properly introduced and correlated, but foreign matter introduced into living tissue is certain to cause irritation; and

because of public demand and because it was less expensive to equip one high school with kitchen and sewing room than to fit up thirty grade schools, the teaching of facts and habits and of mere methods of work has found its way into a position it cannot maintain.

Personal habits useful for the survival of the human animal in its present surroundings must be thoroughly learned at an early age. The high school comes too late, the mischief is done and can be undone only with tears and time. Muscle training in relation to future practical application, use of saw and plane, of needle and of cooking processes to be successfully and *economically* given must come before high-school age. Mere tool work, mere cooking and sewing belongs in the grades where each motion learned stays learned. Muscle never forgets. In other words, the work of the grades should include *manipulation* of as many as possible of the materials which enter into the daily routine of life without attempted explanations. The child of ten or twelve can learn to boil and filter water and to wash hands and face, to keep fingers clean and off from possible dirt, to cook vegetables and broil steak, to make chairs and tables for a model house, to make anything to scale from drawings, to choose colors and fabrics. He may learn the thousand and one *habits* and muscular motions which acquired at this age without conscious effort, are never forgotten.

To explain this position it only need be assumed that subjects and methods which have great social value, which are necessary to the welfare of the community, must be taught in the elementary school where alone *all* citizens receive an impetus toward individual and civic efficiency.

Secondary education, on the other hand, reaches a class upon whom we ought to be able to depend for the application to every day life of the results of scientific investigations in hygiene and sanitation; but at present there is little sympathy and co-operation between the investigator and the public. This sympathy can be established by those who are interested in practical affairs and who have been so educated as to understand

the scientific spirit and to be conversant with the scientific method of work.

If the teacher of domestic science in the secondary school is to form part of this important connection between theory and practice, and is to aid in establishing sympathetic relations between the investigator and the public, she must have opportunity for a more thorough scientific training than our present normal courses offer.

Once this stand is taken, the curriculum of the high school is relieved of one part of its present incubus. But a stumbling block remains in the sequence of science subjects as now tabulated. Chemistry is often found in the fourth year and cooking in the first; drawing in the third year and sewing in the second. The difficulty will disappear once the subjects are accepted not as ends in themselves, but as foundations on which to build.

The following outline for an ordinary high school, not one devoted to manual training particularly, is given as suggestive of a logical order, each year being an addition firmly welded to what has gone before. The assumption is made of good "grade" foundation in elementary botany, physiology, etc., and in manual and physical training. The time taken is distributed so as not to interfere with the other essentials. The serious change is in introducing the sciences earlier than usual, and in a somewhat different order. The reason will be evident on examining the character and range of the illustrations.

The civic and economic side requires maturity of mind, and brought in at the end enables the young student to gather up all school experience into an ethical ideal of great value as school is left behind and life is entered upon. If something on this order is not given, the scholar goes out into the world not only ill prepared to meet conditions, but with the feeling that school has been of no value, or has had no connection with what follows.

It is true that physics is more often a second year study; but certain aspects can be given in the first year of the high

school better than chemistry and there is a gain in dividing a subject of so much theory and so capable of developing reasoning power. There is an advantage in impressing upon the young student the fact that a science can never be finished—it goes on into the university, the professional school, life. School physics should not deal with the whole science but with parts of it especially adapted to the student.

AN OUTLINE FOR DOMESTIC SCIENCE IN THE HIGH SCHOOL
 (Based upon at least three years' work in the grades in which evident facts and manual skill have been acquired.)

First year: 2 to 4 hours weekly.

Hygiene.—First aid to the injured; standards of personal health emphasized.

Physiology.—Review; study of functions, etc.

Drawing.—Working drawings, form, design, color, historic ornament.

Textiles.—General study of, including their uses; form and color as applied to garments.

Physics.—Mechanics of solids, liquids, gases; heat.

Second year: 3 to 4 hours weekly.

(Science applied in cooking, cleaning, and other aspects of domestic life.)

Historical.—Practice in use of library.

Experiments.—Showing effects of heat, expansion of gases, etc.

Economic botany.—Plants and seeds used for fabrics and food. Drawing and design may be continued in this connection.

General chemistry.—(First half year.) Emphasis given to elements that enter into foods.

Physics.—(Second half year.) Heat reviewed; electricity.

Third year: 2 to 6 hours weekly.

(Applications of scientific principles to daily life.)

Physiology of digestion.—Saliva; pepsin; intestinal digestion; pre-digested foods.

Preparation of foods.—Protein foods; carbo-hydrates; fats; food adjuncts.

Foods for the sick.

Balanced ration.—Dietary study for one day; marketing; meals cooked and served; (this is not essential in the college preparatory course.)

Biology.—Most familiar plants; algae; molds; mildews; yeasts; bacteria in air, water and food.

Chemistry.—Analysis, including ash of foods; preservatives.

Fourth year: 4 to 6 hours weekly.

Sanitation and civics.—(1) House—soil, surroundings, construction, plans, plumbing, ventilation, heating, cleaning. (2) Food—water supply; purity in foods. (3) City—laws on sanitation. (4) Disease—prevention; care of sick.

Economics.—Cost of living—house, clothing, food; higher life; standards.

Chemistry and physics.—Applied in air analysis and disinfection; in discussing plumbing, ventilation, heating, house site.

Botany.—Review bacteriology.

Drawing and design.—House plans; house decoration—form, color, materials, use. (Color and form in dress may be elective.)

An indispensable adjunct to any high-school course is the collecting of material for a school museum. To be educative in the fullest sense this museum should be the work of the class itself and when completed may be given to an industrial school in the neighborhood or exchanged for a collection made East, South or West or in a foreign country, selections being retained for the home museum.

Drawings, models and sketches may be kept on file for the criticism of the next class; also menus and photographs of the table as correctly laid.

Colored photographs of the designs in house and dress will serve as a basis for advance and will save much time in acquiring a right point of view.

Photographs of badly kept alleys, as well as of cleanly; of streets with cheerful window boxes, contributed by the boys, will tend to unite the school in ideals of civic improvement.

Indeed, the school museum should be the joint work of the boys and girls. The application of their common science may be various but the commonness should be brought out. There is not one chemistry for the farmer and another for the house-wife, only different applications of the same science.

The above is a mere sketch of the order in which application may be brought in to fix the principles taught. Exercises in English composition for both boys and girls may cover the investigation of shops and markets, of means of transportation and methods of manufacture.

The futility of much of our present teaching is illustrated by the answers of a high school graduate to questions on electricity and its uses. "There were two kinds, one in the clouds and one kept in jars. It was used to run batteries and to light the gas." This child lived in a city with electric cars and electric lights in the streets.

The public money expended on high schools should produce more effect on the progress of the community. For these selected children should be in training for efficient, capable leadership in public as well as domestic affairs. The wise spending of money from the public purse for the general welfare requires a knowledge of the materials and processes used in the service of the state. The much deplored graft is possible only when the majority are so ignorant as to permit of misappropriation of public funds.

If, as has been claimed, domestic science has for its chief object the teaching of the fourth R, right living, then it means present day knowledge applied to the home, with as much educative manipulation as is needed. But the basis of the teaching is scientific truth made to do service for better family living. This applied science is of the nature of other well developed courses in which physics, chemistry, biology and engineering are drawn upon for laying foundations for social habits which shall lead to successful results in human efficiency. It is not, as found in the school course, for the purpose of trade training any more than the teaching of music, now so firmly insisted upon, is given for the purpose of making great artists. It is, or should be, given with the same end in view as music, drawing, and French—that is, of developing the powers of the individual, of enabling him to enjoy this world more, to care for himself better, to live a saner, more wholesome life.

If the elementary school gives the foundation of habit and of manipulative skill, the secondary school can build a structure of reasoning power, can require the pupil to *think out* the probable result of certain proposed combinations, such as the form which certain mechanical operations should assume, or the re-

sults which given chemical combinations will produce. The secondary school can put in the hands of the pupil such tools as will excite the brain to activity, to curiosity, if you will, as to the why and how.

I believe it to be a lamentable fact that much of our high-school science is now wasted because the pupil sees no more use in it than in Greek verbs, and that just the fillip of interest could be added by the illustration of application in daily affairs. The unknown and the abstract must be closely connected with the known and concrete, else the art of learning will not be acquired. Fully ninety per cent of the pupils who take courses in physics in the high schools (and in colleges as well) will open the window at the bottom to let out bad air, although they know the abstract fact that gases will expand and rise when heated. Perhaps ten per cent of these same pupils will clean gloves close to the gas jet or light a fire with kerosene. The interest of the child of high-school age could be caught easily and fixed by illustrations of and demonstrations with the materials of daily use in our homes. Interest once aroused, the *reason* for the phenomena seen and the desire for experimentation to discover other phenomena is easily developed. Abstract science does not fix the attention sufficiently to make a lasting impression in the case of the average pupil of high-school age.

This illustration of scientific principle by the activities of daily life is rendered imperative in the school *because it is not made in the home*—because of the failure of the parents and the home to do for the children of today what the parents did for the children of the day before our system of education was developed. This failure is due not to incompetence, it is due to an impossibility for any mind, except it is trained to think along modern lines, to take in, for instance, the significance of the practical possibilities of the discovery of x-rays and radium. The average parent has scarcely become adjusted to microbes and toxins. He does not know the meaning of half the words his young children use so glibly.

It may be replied correctly that we all use means and ma-

terials without knowing anything about their nature, and it may be argued that therefore it is not necessary for any but the manufacturer to know fundamental principles. For practical purposes it is sufficient to press the button or turn on the switch without knowing anything about the native properties of electricity.

In a sense this is true. The under carpenter uses boiled linseed oil to polish off the woodwork in a college hall or fine residence. If the head man, who does know, happens to be by when he has finished, he will see to it that, if it cannot be burned at once the soaked cloth is put in a metal receptacle on a cement floor. If, however, the workman is by himself, he is more than likely (judging from experience) to drop the cloth down the nearest hole under the porch, rather than to take the trouble to go the length of the building and put it away properly. He does not *believe* it will do harm. Result, a fire and destruction of the building.

A scrutiny of the newspaper columns for one week only would convince the most skeptical that hundreds of lives and millions of money are lost because of the ignorance of the masses of the dangers which they incur along the path of their daily duties.

Since prevention is an accepted method of dealing with other evils, why not, in the course of education, give the child the means for his protection? Then *interest* him in science by showing him the *use* of it. It seems to be a universal truth that all children have an instinct which leads them to apply all the facts they get. It may be that much of what looks like application is mere imitation, but my experience with boys and girls only twelve years of age in our public schools leads me to believe they are quick at real application of scientific principles if properly presented.

When all has been said, however, it remains true that the greatest opportunities to promote social welfare and social progress lie not in the better organization of business and manufactures, nor in the fairer distribution of income, although

there are great opportunities in these directions, but precisely in this field which woman is urged to abandon, viz., in the better use of social resources, the better organization and direction of our domestic affairs.

If, as Carroll D. Wright states, the struggle of labor is and ever will be toward a higher standard of living, then it is a legitimate use of public funds to give to those educated at public expense a solid foundation upon which to build standards which shall lead to greater personal and civic efficiency.

Today all youth have a right to demand an elementary knowledge of the *principles* of science, including mechanics, electricity and chemistry. They have a right to ask for well-balanced bodies as well as minds, and to be put in sight of a path which will lead to a useful life, and given the first set of tools with which to work, diverse as life's paths are diverse.

It is with this thought of higher personal efficiency that those who are advocating the study of home economics or home science wish to see it placed in every school in this country. Just what the subject stands for has been suggested in a tentative definition as follows:

"Home economics in its most comprehensive sense is the study of the laws, conditions, principles, and ideals which are concerned on the one hand with man's immediate physical environment, and on the other with his nature as a social being; and is the study especially of the relation between these two factors."

Edward Devine has advocated giving in school and college "the elements of household economics, whether of the kitchen, the living room, or the sleeping room, the cellar or the attic, the front yard or the back yard, the architecture, the decoration, the care of children, the family budget, or even, if you like, the perennial problem of domestic service. These subjects, properly taught, are eminently suited to the development of the very qualities for which the traditional seminary course makes no provision.

"They are neither 'classics' nor 'natural sciences' in the

sense in which these two groups of studies have been used in the battle royal for a chief place in the college curriculum, but rather belong among the logical sciences; that is, those which develop observation and reasoning in a natural and logical order, a group which, represented chiefly by economics, sociology, and politics has been pressing successfully but unostentatiously to a foremost place. I would advocate, therefore, the study of household economics, not with a view to the making of better cooks, waiters, cleaners, and caretakers—though these will come incidentally—but because such study dignifies and invests with a ten-fold interest the routine and drudgery of household affairs; and also because the subject most naturally lends itself completely to the kind of instruction which women most need."

DISCUSSION OF THE TRAINING OF SECONDARY TEACHERS

CHARLES A. McMURRY

I have given the Yearbook a careful reading and am greatly pleased with the whole execution of the plan. I have one line of thought to suggest. The problem of training teachers in both normal schools and universities involves, as one of its chief difficulties, the induction of the young or inexperienced teacher into the difficulties of actual practice. All pure theorists both in normal schools and in universities persistently dodge this problem. Reasons, excuses and explanations are invented, manufactured and multiplied in order to escape from this problem. No coward ever invented more reasons for keeping out of battle, for hiding behind stumps, than the theoretical pedagogue will invent for escaping from the hardships of teaching. There must be deep down in the consciousness of the pure theorist the conviction that his theories will not stand the test, that they will dissipate like mists in the presence of real difficulties. Whether he thinks so or not, everybody else does. Among the rank and file of good teachers, the theorist who declines the smoke of battle, who like Xerxes takes his safe position in some high tower where he can overlook the battle, is regarded with intermingled suspicion and distrust. Superintendents and supervisors who talk glibly and learnedly about philosophical theories, about psychology and method, but leave all the actual handling of children to others are not conscious how empty and farcical their work appears to real teachers.

Such statements as these may seem radical and possibly unjust. But anyone who will take pains to inquire into the facts will soon find that they are just. It is my opinion that no error in education is so deep-seated, fundamental and disastrous as the opinion of the theorist that he can safely trust his conclusions without more or less constant resort to actual prac-

* * *

It is this false security which makes so many of our leaders in education blind leaders. It is this which makes such a wide cleft between the great body of actual teachers on the one side and the theorists on the other.

Theory and philosophy of education are just as important as practice; but neither one of them comes to a proper fruitage till they are combined, and it is the combination of them which is the crucial difficulty in education. To be a mere theorist is to be an empty face; to be a mere practician is to be a narrow formalist. To rationally combine them in the actual work of education is one of the greatest achievements of a broad and efficient character. The university as it exists to-day is no proper place for the exhibition of this narrow isolation of theory from practice. The medical school with its clinics and hospitals, the engineering departments with their shops, the agricultural department with its farms and experiment station, the department of architecture and fine art, and all the professional schools are now pre-eminently characterized by the practical side being brought into closest relation with the general-theoretical.

The educational department at a university is distinctly and solely professional. Otherwise it would never have existed. To make it purely theoretical is to put it into contradiction to the present spirit and intent of all professional schools at the university.

Moreover these conclusions are strongly confirmed by the history of educational departments at universities in this country and in Europe.

At the University of Jena, Stoy for nearly forty years maintained a chair of pedagogy and a practice school where he trained in all about 600 teachers for the secondary schools of Germany. Probably no other man of his time in Germany produced so strong an influence both theoretical and practical upon the schools. Ziller did the same kind of theoretical and practical work at Leipzig, and during the last eighteen years Dr. Rein has stood foremost among educators in Germany,

keeping up a practice department for secondary teachers in connection with his lectures in psychology and pedagogy. Earlier still Herbart did the same kind of combined theoretical and practice work for twenty-four years at Königsburg.

These four men, by combining theory with practice in their work at universities, gained a reputation and an influence ten-fold greater than that of any mere theorist who lectured on education at a university. There have been dozens of men who have merely lectured on education but their names are in the main unknown to the world. In America the same phenomenon may be observed. Dr. Dewey at the University of Chicago, by combining his lecture work with a practice school, where he met actual difficulties, has gained a leadership in educational thought in America which is most instructive.

The Teachers College at Columbia University and the School of Education at the University of Chicago, by dealing directly with the problems of education as shown in actual school practice, have given an example to universities in this country which promises great things for the future. The characteristic, pre-eminent mark of a first-class teacher in Germany is his recognized and proved ability to instruct young people skillfully. It is to be hoped that the time will come in this country (and will not be too long delayed) when leaders in education, superintendents, supervisors, normal school teachers, professors of pedagogy and psychology and lecturers on education shall first of all win their spurs and establish their right to leadership by applying theory to practice by the actual work of managing and instructing boys and girls skillfully.

By CHARLES B. GILBERT.

Since my work has had to do not with the preliminary training of teachers, but with their employment, and since I am compelled to supplement the work of the training schools, I shall write from the superintendent's point of view and indicate what seems to me some of the most serious lacks in the teachers of secondary schools, which might wholly or partially be remedied by proper preliminary training, and shall leave it to those whose work is the training of teachers to find the means and devise the methods for meeting these needs.

What a stride forward it is that we even think of training secondary teachers! But a few years ago such a suggestion would have consigned its maker to the limbo of hopeless cranks, and would have brought forth the most theatrical of guffaws from the army of secondary teachers, especially those young college graduates just blushing rosy red and standing very erect under the newly acquired title "professor." But the world moves, and from the crushed and discouraged mass of youth who every year drop out from secondary schools, we have gradually ceased to draw comforting reflections upon our own superiority and to boast of the marvelous selecting power of the secondary school. School authorities are demanding that teachers of the secondary grades be teachers as good and as earnest and as sympathetic as the teachers of the elementary grades.

In speaking of the sort of training needed by secondary teachers, I think we may accept without question as fundamental the proposition of Dean Jas. E. Russell of Teachers College, Columbia University, in his paper at the Columbus meeting of the Department of Superintendence, that secondary teachers need to be equipped with *general knowledge, special knowledge, professional knowledge and skill in teaching*. I shall simply mention some other needs which may perhaps be taken as amplification of Mr. Russell's four requirements.

My first will certainly come under the head of professional knowledge. The secondary teacher needs to be profoundly versed in the psychology of adolescence. In my judgment this knowledge on the part of the secondary teacher is even more important than the knowledge of the psychology of infancy on the part of the primary teacher. I do not need to enlarge upon this time of storm and stress through which every human being passes before arriving at manhood or womanhood and which so frequently overturns the promises and calculations of childhood. In general it is the period covered by the years of the secondary school. I am wholly confident that a large number, if not the greater part, of failures to succeed in school life at this period are due to the lack of understanding of the needs of youth by the secondary teachers.

The teachers need more than an academic knowledge of the literature of adolescence; they need training in the application of this knowledge to individual cases so that if brought face to face with a class of boys and girls just out of the grammar school, uneasy, embarrassed, awkward, frightened, full of vague ambitions and vaguer antipathies, sentimental, silly—it may be, they can detect individual needs and meet them with good sense and sympathy.

I asked a high-school principal recently what he considered the greatest need of high-school teachers, and he said, "sense." I asked him if he thought that could be secured through training, and he said, "partially." Now this is one of the ways. "Sense" includes knowledge and the ability to apply it to new conditions. The training school can give the prospective secondary teacher a knowledge of the general characteristics of the adolescent period, and proper observation and practice under suitable supervision can turn that knowledge into sense and make it possible for him to be the guide, counselor and friend of the young people. No secondary teacher can be called sensible who can not distinguish awkwardness from dullness, diffidence from sullenness, sensitiveness from haughtiness, uneven development from stupidity. The awkward, freckle-faced

boy uncertain whether he is a child or a man; the gawky, embarrassed girl, poetically described as "standing with reluctant feet where the brook and river meet, womanhood and childhood fleet" need something more than a teacher possessed of broad, general knowledge; academic-professional knowledge; special knowledge of the subjects to be taught; and even skill in imparting. I have known many teachers with all these characteristics who were very poor teachers for the high school simply because they had never been trained to cast a sympathetic eye over the boys and girls placed under their care or to exercise heart power.

These young people need a teacher friend who uses heart as well as head. I have known teachers really sympathetic in nature who held aloof from their pupils, treated them, if not with harshness, at least with rigid severity and confined their labors to the teaching of their subjects, although they had abundance of heart power to pour out in service of the heathen and even in Sunday school, simply because it had never occurred to them that it was part of their duty to use this power for the boys and girls in the high school. Hence, intending secondary teachers should be trained to a sympathetic touch, whose use often makes all the difference between life and death to the young people in school.

Second. Secondary teachers need to be trained to skill in managing classes of students. This really grows out of the former proposition, though I have in mind more particularly the dealing with these classes in the aggregate, applying the personal acquaintance and sympathy to the classroom management. This comes not merely from professional knowledge nor from any special knowledge; it is simply a broader use of "sense" and can only come through practice.

A professional training school for secondary teachers without a school for observation and practice similar to those provided for primary teachers in the ordinary normal school is at most an empyro and a hope. The first few years of employment practically settles the professional future of the young teacher,

and to furnish him with experience gained under wise guidance and supervision is to give him an enormous advantage. Hence, the second need is actual experience in class management, gained under supervision.

Third. Professional training should include much which at the first blush seems unnecessary. It should place great emphasis upon the whole scope of the field of education and in particular upon the curriculum, ideals, and methods of primary schools. One of the greatest difficulties which the student passing from department to department or from institution to institution has to meet is the change of standard. The most common complaint among teachers is that the pupils who come to them are not properly prepared. The grammar school teacher complains that the primary teacher has failed adequately to train the pupils; the high-school teachers complain that the grammar schools have failed to fit properly their students for the high school; the college teacher claims that the secondary schools are at fault. All along the line this compliant is continuous and continual, and most of it is rank nonsense. It is simply due to the ignorance of the teacher of the higher grade of the conditions prevailing in the lower and of what he ought to expect.

A change of educational environment means some temporary loss in all cases. The student is embarrassed by his surroundings, awed by the feeling that he belongs to a higher institution, and it takes a little time for him to become accustomed to the new environment so that he can do his best.

I am often surprised at the work presented to me by high-school teachers and received by them from pupils whose work in the grammar schools was thoroughly good. This poor work is due partly to this inevitable loss through change in environment and partly to the failure of the teachers to understand the children and hold them up to their best. Secondary teachers commonly set up standards of their own which are seldom standards of power, but more commonly standards of knowledge, and the classes which come to them always fall short of

this standard, in their judgment, because the tests applied at first do not produce satisfactory results. After a little while the pupils begin to improve, and to show the power they really have; then the secondary teacher comes forward and says, "See this great Babylon which I have built. I took these pupils, knowing nothing, from the grammar schools and now see what they can do." Meanwhile, a considerable number, frequently of the very best students, have been discouraged and frozen out and have left school.

The great loss in numbers during the first year of the high school continually reflects upon the "sense" of the high-school teachers. Training schools could do much to remedy this if they were to acquaint the intending secondary teachers with the real aims of elementary work and impress them with the fact that ability to meet continually new conditions rather than such special knowledge as the secondary teacher can test by an examination is the aim of the primary school and should be also the aim of the secondary school.

This knowledge, moreover, should not be merely theoretical. The intending secondary teachers should observe and practice in elementary schools in order to know the work that boys and girls do and the kind of people that they are.

Further, they should have a view of the whole scope of education in order that their own aims may be right. If they are connected with the public schools they should have a clear view of the economy of the public-school field, of what training citizens means and of the rather insignificant place in the whole training of life the particular specialty which they represent holds.

This leads to the fourth point: the training offered intending secondary teachers should make clear to them their place in the economy of education. This needs to be made particularly clear as our high-school teachers more and more become specialists. A danger besetting the specialist as a teacher is in the fact that the whole world revolves about his specialty. If he is a specialist in bugs, a bug becomes the centre of the uni-

verse, and no human life is complete without a knowledge of bugs. In university fields such exaggeration by the specialists of their own line of work may not only be excusable, it may be useful because their business is to train specialists; but in college work and especially in the work of secondary schools, it is not only absurd but dangerous.

The specialist in the secondary school must be first of all a teacher and a teacher of children and youth, then he may be as thorough a specialist as he can. If he understands the whole scope of education, if he knows what children have been receiving before they come to him, what they are to receive afterward, and is thus through his breadth of mind and his "sense" able to co-operate for the good of the child with the other teachers, he may be as ardent a specialist as he pleases and do no harm; but if he insists that his department is the one to receive all the time and attention, and if because of any unusual advantage, owing to personal vigor or standing in the school, he uses every opportunity to force more work out of the students for his department and for his glorification, then he is not a good teacher no matter how well he may understand the subject or how broad his general knowledge may be.

Beware of the high-school "professor," striving to substitute the teaching of things for the training of youth. There is no more dignified title than that of teacher, and this should be impressed upon the intending secondary teacher in the training school. He should understand that he is not to occupy a professor's chair or sit behind a desk and emit floods of knowledge concerning his specialty upon classes, but that he is to train children and youth for life and to co-operate with other teachers in so doing. As Mr. Russell pointed out in his paper, the high school is the product of forces from below and above, but the secondary teacher (or rather professor) has come from above. His whole notion of teaching is derived usually from a bad model which he observed in college, and he seeks to transfer that to his own field. In many cases he even, save the mark, becomes a lecturer, the very poorest of all types of the teacher.

Instead of arousing young people to activity, he would pour into them his own superior knowledge.

Let then the training schools see to it that the young teacher who comes out is modest, is impressed with the importance of his work as a teacher, realizes that he is co-operating with all the other forces which are educating the child, that he is even to be willing to sacrifice his specialty to the child's general good, that he is not a "professor" and never should want to be, that he should be the sympathetic friend and guide of children; and they will do us a greater service than even that indicated in Mr. Russell's able paper.

To recapitulate then: First, training schools should put special stress upon the knowledge of the psychology of adolescence and upon the application of that knowledge to individual cases. This should be done through observation and practice under supervision. Second, they should seek through the same means to impart that skill in managing classes effectively which we expect from the elementary teachers. Third, they should give knowledge of the scope of education, particularly of the work of the elementary schools, in order that the secondary teacher may measure by correct standards the young people coming to him; and fourth, they should impress upon the intending secondary teacher a sense of his place in the economy of the school system, and should send him out with enthusiasm and sympathy that he may be a guide and helper of youth and not merely a teacher of subjects.

MINUTES OF MEETINGS HELD AT MILWAUKEE

February 27 to March 1, 1905.

(THE PLANKINTON HOTEL.)

Monday, February 27.—Meeting called to order by the President, W. S. Jackman. Grant Karr was appointed Secretary *pro tem.*

Discussion of the education and training of secondary teachers, opened by R. P. Halleck, Louisville, Ky. Discussion was participated in by Sutton, Blair, Doty, L. H. Jones, Groszmann, Carroll, Hill, Kratz, Kirk, Dexter, Cary, Brooks.

Evening session called to order by the President at 8 p. m. and continued till 10 p. m. Full attendance. About one hundred present.

Tuesday, February 28.—Dinner in Colonial Hall, 6 to 8 p. m. This was an enjoyable affair. Two minute speeches by various members.

Wednesday, March 1.—The following business was transacted:

Motion to appoint Auditing Committee. Carried.

Motion to present report in year book. Carried.

Motion that the securing of contract for printing be referred to the President and Secretary of the Society. Carried.

Motion appropriating a sum not to exceed one hundred fifty dollars for postage, etc. Carried. [This was meant to cover the Secretary's expenses.]

Motion that question of incorporation be referred to President and Executive Committee with power to act. Carried.

Motion to become allied with the American Association for the Advancement of Science. Deferred to one year from date.

Discussion as to topics to be taken up, Halleck, Brown, Blair.

The following new active members were elected:

William C. Bagley, State Normal College, Dillon, Mont.

Walter H. Cheever, State Normal School, Milwaukee, Wis.

Alexander B. Coffey, University of Wisconsin, Madison, Wis.

Flora J. Cooke, Francis W. Parker School, Chicago, Ill.

Frank W. Cooley, superintendent of schools, Evansville, Ind.

R. B. Cousins, state superintendent public instruction, Austin, Texas.

F. E. Doty, state high school inspector, Madison, Wis.

Gertrude Edmund, Lowell Training School, Lowell, Mass.

J. M. Frost, superintendent of schools, Muskegon, Mich.

Wilbur F. Gordy, superintendent of schools, Springfield, Mass.

Cora M. Hamilton, State Normal School, Macomb, Ill.

Florence Holbrook, Forestville School, Chicago, Ill.

Paul W. Horn, superintendent of schools, Houston, Tex.

Walter Ballou Jacobs, Brown University, Providence, R. I.

Calvin N. Kendall, superintendent of schools, Indianapolis, Ind.

Arthur N. McCallum, superintendent of schools, Austin, Texas.

G. R. Muller, superintendent of schools, Binghamton, N. Y.

George D. Pickels, State Normal School, Natchitoches, La.

Rosalie Pollock, supervisor primary grades, Salt Lake City, Utah.

Homer H. Seerley, president State Normal School, Cedar Falls, Iowa.

Gerard T. Smith, superintendent of schools, Moline, Ill.

William E. Stark, Ethical Culture School, New York, N. Y.

Henry Suzzallo, Teachers College, New York, N. Y.

J. K. Stableton, superintendent of schools, Bloomington, Ill.

Edward Thorndike, Columbia University, New York, N. Y.

Albert W. Tressler, University of Wisconsin, Madison, Wis.

Dwight B. Waldo, State Normal School, Kalamazoo, Mich.

Report of Nominating Committee: For President, E. G. Dexter, University of Illinois; for Secretary-treasurer, Manfred J. Holmes, Normal, Ill.; for members of the Executive Committee, C. P. Cary, Madison, Wis., and J. H. Van Sickie, Baltimore, Md.

Moved by Mr. Blair that a committee be appointed to report on new name for the Society. Committee appointed were H. E. Kratz, W. S. Sutton, and F. G. Blair.

The program had been arranged to receive ten-minute reports from the following members:

M. P. E. Groszmann, Plainfield, N. J.—The matter of electives for adolescents.

Elmer W. Walker, State School for the Deaf, Delavan, Wis.—Observations and conclusions relative to imagination among the deaf.

John R. Kirk, Kirksville, Mo.—Library courses in normal schools.

W. T. Carrington, Jefferson City, Mo.—Industrial education in rural communities.

J. Stanley Brown, Joliet, Ill.—The six-year high-school course.

Before these reports had all been given Mr. J. S. Brown moved to have the remainder deferred. Carried.

The remainder of the time of this meeting was spent in the discussion of the Yearbook, chiefly upon that part referring to the relation of practice to the preparation of secondary teachers, J. S. Brown, Darling, McKenny, Farrington, VanSickle, Karr, Blair, Seerley, and others participating.

Meeting adjourned *sine die* at 6 p. m., peace and harmony prevailing.

GRANT KARR, *Secretary pro tem.*,

State Normal School, Oswego, N. Y.

REPORT OF THE SECRETARY

Since becoming Secretary I have tried in various ways to locate the body and discover the spirit of the National Society for the Scientific Study of Education. It is clear that there is a body of capable and earnest men and women in our country who believe in the Society because it can become a valuable agency in several important respects: (1) in promoting the scientific spirit and method in the study of educational problems; (2) in promoting the spirit and securing the values of co-operative fellowship; (3) in securing the stimulating and corrective effects of vigorous and honest but friendly exchange of opinion from different points of view; (4) in publishing from time to time the results of scientific study and views of the status of educational opinion and practice; and (5) in bringing into personal acquaintance a goodly number of the men and women who are working to make individual life and institutions conform to the best ideals that characterize American life.

But it will take time for the Society to reach such standards of effectiveness. It ought to be clear that we are all working on parts or aspects of a great common problem, each with a more or less limited point of view and in his own way; that mutual understanding and appreciation of each other's points of view will illuminate the field for more effective attack of one's own problems, and more intelligent co-operation; that progress in all science and art is a social product, and can best be promoted when those concerned know the results of past experience and the present status and outlook. We need greater solidarity of spirit and organization; and greater mutual intelligence with regard to the problems, the conditions, the methods, and the results of the work of our fellow members. The Yearbook should be made a more effective organ in deter-

mining the character of the Society. Out of the entire membership there ought always to be a few individuals and committees who have work maturing so that there will be plenty of first-class material for the Yearbook some months in advance of the time for publication. Since one function of the Society seems to be the propagation of spirit and ideas, we ought to have a permanent associate membership of several hundred who would be regular readers of the Yearbook.

Can and will *teachers* sustain a society that is dominated by the exactions of scientific spirit and method? Time has not yet proved this in our country at least; but why should not this Society meet its opportunity and acquire such scientific character that the conferring of its membership will be more than a compliment—even an honor?

In harmony with the above conception of what our society ought to be, and the conviction of certain present needs, I have prepared a brief report under the following headings:

1. *What specific lines of study are members now engaged upon?* It is not expected that each member will have at all times a definitely formulated problem. I suppose, too, that those who replied to my question represent a minority of them that are now engaged upon specific, definite problems. It is hoped that a knowledge of what is going on within the membership will lead to correspondence between members who may wish to know more about conditions, method, and results of some of these specific lines of work and study.

2. *How can our meetings be conducted to yield a maximum of value?* There is a rather general opinion that many educational meetings do not yield as great value as they ought and can yield. It ought to be impossible to have such opinion apply to any society for “scientific study.” It has seemed to me best to print the replies returned and let the members of the Society draw their own conclusions.

3. *What is meant by “scientific study of education?”* I have printed the replies to this question also, because in addition to their being of interest and practical value to the Society,

they have a certain historical value as revealing the present status of opinion as to what constitutes a scientific study of education. The variety of the conception is significant.

An extended exposition of the meaning of this phrase by one of the ablest scientific students in the Society will appear in the February (1906) issue of the Yearbook.

SPECIFIC LINES OF STUDY MEMBERS ARE ENGAGED UPON

W. C. BAGLEY, State Normal College, Dillon, Mont.—Ideals as factors in the educational process.

EZRA W. BENEDICT, superintendent of schools, Warrensburgh, N. Y.—The correct sequence of work, in detail, in the grades of the public schools; the correct sequence of the various branches of the curriculum and of the various divisions and subdivisions of each branch.

STRATTON D. BROOKS, supervisor of city schools, Boston, Mass.—Specific industrial education in elementary schools.

J. STANLEY BROWN, superintendent of Township High School, Joliet, Ill.—Six-year course of study for both high and elementary schools.

SARAH C. BROOKS, principal Teachers' Training School, Baltimore, Md.—The problem of the city training school. Self-activity as the fundamental law of development, and its possible manifestations. Next year this work will be put into permanent form, not for scholars, but for mothers and teachers. A set of school readers.

WM. H. BURNHAM, Clark University, Worcester, Mass.—The field of school hygiene, particularly upon matters relating to the hygiene of instruction and the hygiene of the school child.

F. W. DARLING, Chicago Normal School.—A series of school geographies.

LIDA B. EARHART, State Normal School, Whitewater, Wis.—My problem the last four years has been the preparation of courses of study for our training department. With the co-operation of other members of the faculty, I have tried to produce a manual which shall embody the results of recent movements in various lines of education; to make a course of study suited to the children, to our environment, and that shall be a guide and help to the pupil teachers who use it. We have tried to grade it carefully, and where practicable and wise, to correlate the various parts. It is not perfect but it is workable and helpful.

J. M. FROST, superintendent of schools, Muskegan, Mich.—Manual training in the grades.

CORA M. HAMILTON, State Normal School, Macomb, Ill.—The effective relation of the training school to the normal school.

EDGAR L. HEWETT, U. S. National Museum, Washington, D. C.—Ethnic factors in education.

REUBEN POST HALLECK, principal Male High School, Louisville, Ky.—The neural basis of ethics.

JOHN A. KEITH, State Normal School, DeKalb, Ill.—How organize and present psychological truth in a way that shall prove helpful and stimulating to teachers who have not had the opportunity to study psychology. The plan is to find out what difficulties such teachers encounter, group these in such a way as to reveal generic difficulties, and then develop psychological truth that applies to the generic difficulty.

The relation of motor activity to the appearance and development of ideas, from the viewpoint of its relation to schoolroom method.

H. E. KRATZ, superintendent of schools, Calumet, Mich.—A book under way—Studies and Observations in the School Room.

ISABEL LAWRENCE, State Normal School, St. Cloud, Minn.—The social life of children and the early adolescent. This is a woman's problem and the mothers in our state have joined the teachers in an effort to get more light on what should be done.

HERMAN T. LUKENS, State Normal School, California, Pa.—The Fifth School Year, a book in the "Series of School Years," edited by Dr. Noss. Each year is a separate book.

G. W. A. LUCKEY, University of Nebraska, Lincoln, Neb.—The certification of teachers. The school agency for teachers.

FRANK A. MANNY, Ethical Culture School, New York.—Discipline in its larger aspects, somewhat of a study of school ethics.

The relation of productive manual industry to education and especially to the school.

FRANK M. McMURRY, Teachers College, Columbia University.—Right things for study and teaching children how to study.

M. V. O'SHEA, University of Wisconsin.—Several studies going forward dealing with aspects of mental development; a volume in the press treating of motor development; another study on social impulses and social development is about complete. "The subject in which I am most actively interested now, however, is linguistic development. I have been gathering data on this subject for the last ten years and am now organizing and interpreting these."

G. D. PICKELS, State Normal School, Natchitoches, La.—General thesis, education is adaptation to environment, and may be treated as a process and as a result. It changes both as to matter and method, whenever environment changes.

A volume, *The Principles of Teaching*, is well advanced.

STUART H. ROWE, Brooklyn Training School for Teachers, Brooklyn, N. Y.—How applications of the "formal steps" to actual teaching are to be reconciled with spontaneity and lack of formalism in instruction.

MYRON T. SCUDDER, State Normal School, New Paltz, N. Y.—Student participation in school government. A school city has been in active operation in the New Paltz Normal School for five and a half years.

H. H. SEERLEY, State Normal School, Cedar Falls, Ia.—Normal school organization and management.

DAVID E. SMITH, Columbia University.—The history of arithmetic.

DAVID S. SNEDDEN, Leland Stanford Junior University, Stanford University, Calif.—A theory of pedagogical (as opposed to logical) method of organizing the subject-matter of the elementary school.

The problem of social education.

Purposes and methods in secondary education.

Foundations of method in the elementary school subjects.

EDWIN D. STARBUCK, Earlham College, Richmond, Ind.—An experimental study on the mental development of children.

The effect of kindergarten instruction on the later development of children.

The growth of the idea of God.

The content of religion.

EDWARD L. THORNDIKE, Columbia University.—Heredity; mental relationships; animal psychology; school expenditures; the causes of leaving school, etc.

CHARLES H. THURBER, Boston, Mass.—The social evolution of the child.

E. W. WALKER, superintendent of School for the Deaf, Delavan, Wis.—

A study of imagination, especially among the deaf.

SARAH J. WALTER, Hampton Institute, Hampton, Va.—Training of Hampton students to go out as teachers of the respective races represented.

DWIGHT B. WALDO, State Normal School, Kalamazoo, Mich.—Course of study for the elementary school.

L. E. WOLFE, superintendent of schools, San Antonio, Texas.—The public school system and solidarity of society.

CONDUCT OF MEETINGS

EZRA W. BENEDICT.—It should be understood that most of the discussion of a given subject is to be by those only who have carefully prepared themselves to discuss a particular phase or phases thereof. A limited number of exceptions should be allowed; but these, as well as the chief participants, should be confined within a strict time limit. To enable the Secretary to arrange a satisfactory program, chief participants should notify him before the meeting, of their intentions to enter the main discussion. If they should distribute at the time of the discussion, printed or type-written slips outlining their discussion, no doubt it would contribute to a more thorough understanding of the same.

No discussion of members' special topics should be permitted before the Society until they have submitted theses to the Executive Committee and their theses have received the approval of a majority of that committee.

STRATTON D. BROOKS.—Five minute limit on specific questions.

J. STANLEY BROWN.—I think a brief paper containing a brief, pointed summary forms the best basis for discussion. Chairman ought to hold speakers to points under discussion.

SARAH C. BROOKS.—The central theme or striking feature of a paper should be considered, the members held to that one theme until the juice

is extracted, at least. It seems to me that we should "speak to the question" and have that question worth while when we drop our work and go hundreds of miles to attend a meeting.

Wm. H. BURNHAM.—I think that in the educational meetings of our Society it would be desirable always to have a paper or report presenting a solid nucleus of important facts and that in order to be profitable the discussions should concern such papers.

EDGAR L. HEWETT.—After the usage of the American Association for the Advancement of Science.

REUBEN Post HALLECK.—The chairman should declare "out of order" all discussion which is foreign to the paper or point discussed. It should be borne in mind that the discussion at the meetings is the very least important work of the Society.

JOHN A. KEITH.—The writers of the papers should be present and have their papers reduced to the form of definite theses which they stand ready to defend. Certain persons should be asked to speak to certain theses and then the discussion should be open to all.

H. E. KRATZ.—Discussions should be held down to the subject under investigation.

FRANK A. MANNY.—In answer to question four, it seems to me that the Society has become so large that it is difficult to carry on discussion. . . Certainly no person should be permitted to present papers of the nature of whose work we are not certain. The material they furnish may be valuable but it certainly should be passed upon first by some responsible person.

F. M. McMURRY.—Pre-supposing a printed article as the basis of discussion, I would suggest (a) that the chairman, or some other person appointed, furnish a carefully prepared set of theses drawn from the printed article; (b) that these theses first be considered by the members of the Society present to see if they contain all the topics wanted for discussion. Different additions could in this way be agreed upon. (c) The theses should then be taken up in order and each one be discussed without reference to the others for the time being. The chairman should either control the discussion, summarizing now and then, calling people to order, abridging discussion, and so on, as seems best; or he should appoint some one to do it, this person not being the writer of the article. The latter would have enough to do simply meeting various objections, etc.

M. V. O'SHEA.—I have often expressed my views to the effect that our Society should be limited to a relatively small number of persons, and then definite problems should be set for discussion at each meeting, every member having freedom to take a hand whenever he chose. The thing likely to prove most disadvantageous in our work is the presence of a general audience which is certain to prevent close and critical discussion. A general audience always leads to general and emotional discussions.

DAVID E. SMITH.—The world seems to have evolved, thus far, nothing better than a set paper, with someone to represent the other side of the argument advanced by the speaker, followed by questions.

DAVID S. SNEDDEN.—Publication of study, as now; appointment, in advance, of certain leaders of discussion, who will read their main points; voluntary discussion, in which the speaker will be urged first to clearly state the point, thesis, or principle which he intends to discuss; and in some cases, the privilege of the principal leader of replying to each discussion as it is up.

L. E. WOLFE.—It has often seemed to me that we could secure better results in our discussions if the discussions were confined more rigidly to a given point at a given time.

WHAT IS MEANT BY A "SCIENTIFIC STUDY OF EDUCATION"?

EZRA W. BENEDICT.—Scientific study of any subject is, according to my conception, a careful examination, uninfluenced by any previously conceived bias or prejudice on the part of the examiner, of the facts, principles and laws appertaining to that subject, the purpose being to discover the truth about it. For the scientific study of an educational problem, the first thing in order is the statement of the problem, in brief and in full. Consideration of all the conditions likely to affect the solution of the problem must follow. The historical aspects of the question cannot be neglected, including attention to the efforts that have been made by others to solve the problem. All education, in the sense in which we use the term, has to do, in the last analysis, with changes in nervous matter and its related mind. Hence any method of studying an educational problem must be deemed defective and not strictly scientific which fails to take into account the laws of mind and nervous matter as furnishing the ultimate basis for the settlement of every such problem.

J. STANLEY BROWN.—(1) A study of some problem so intensively as to reveal greatest weakness in current treatment. (2) Experimentation with a view to discovering a better treatment of the problem. (3) Comparison of results. (4) Abstraction of needless things in solution of problem. (5) Deduction including only essential things.

SARAH C. BROOKS.—I don't know how to answer your question about scientific study, unless it is the inductive tendency of grappling a subject and considering it in every available light, being content with limited results from time to time, but never letting go until light finally dawns. I lose time in the search for books, but that may be due to individual limitations. Then there is the matter of patience over the time required for elaboration, and of how to obtain the required time.

W. H. BURNHAM.—Perhaps my paper in the Educational Review, [vol. 26, pp. 236-245], "Education as a University Subject," will give an idea of my answer to this question.

LIDA B. EARHART.—According to my conception a "scientific study of education" is one which seeks to base education upon sound philosophy and psychology; which seeks to find what contributions other sciences have yielded or may be made to yield toward solving the problems of the school-room; which investigates pedagogical procedure not only according to

general laws, but according as it must be determined by the nature of individual minds and the character of the subject-matter.

EDGAR L. HEWETT.—Education is not a "science" in the sense in which that term is ordinarily used. It derives its data from numerous contributory sciences, as anthropology, sociology, psychology, etc. It might be considered a "science of sciences;" but this is open to controversy. Yet clearly pedagogy must deal constantly and should deal intelligently with problems which root in the sciences above named. This seems to me to point the way to a "scientific study of education." When we select the term "scientific" to attach to our Society, we imply *investigation, research*. Accordingly the following classes of problems suggest themselves to me as the legitimate work of our Society.

1. Investigations on the data of contributory sciences with reference to their bearing upon education.
2. Investigations touching the application of accepted facts of these sciences in educational practice.
3. Original research in the contributory sciences with a view to deriving facts bearing upon education.

It has always seemed to me that the investigation of such problems in the scientific spirit by scientific method might go far toward elevating education above the controversial plane.

REUBEN POST HALLECK.—The term "scientific" cannot be used in educational matters in the same way as in a laboratory. Mental effort of greater or less intensity can not be weighed with as much certainty as sugar in a grocery. This Society is expected to perform inductions and draw conclusions from actual experience, not from introspection. Inductions performed from experiments on different molecules of hydrogen and iron will have a certainty that educators can not hope for, since no two classes of pupils and no two educators can ever be the same in the sense that different molecules of hydrogen are the same. Many a scientist would throw up his hands in despair if he was compelled to draw certain conclusions from such variable factors. At the same time, concerted effort among educators ought to disprove many prevalent errors in educational induction.

JOHN A. KEITH.—A scientific study of education is not essentially different from any other scientific study. There must, first of all, be "the widest possible appeal to fact" either as observation or experiment, or both. The facts thus obtained must be explained in terms of their causal connections (by comparison, classification, and analysis), and these causal relations must be synthesized into laws or principles, which have a logical connection. This framework or these hypotheses must be tested by another appeal to fact, which appeal must prove to be a verification of the hypotheses.

The peculiar difficulties are: (a) the framing of a series of problems in such a definite way that the scientific method can be employed; and even if these were framed, (b) educational men are in no position to make

any extensive experiments and at the same time retain their positions, for children are not as insignificant as are plants or animals; (c) superintendents and others are usually too busy to make (especially to record) accurate observations that bear any relation to the pressing problems of education; and (d) the most fatal danger of all, "specialists" approach their work with preconceived theories which they wish to verify.

Education is a distinctly social affair, and its science is not exactly like that of the mathematical or of the natural sciences. Just as people do not want all homes exactly alike, just as they have different ideas about the best methods of industry, about the function of the state and of the church; just so, and for the same reasons, do people differ regarding fundamentals in education. This eternal differing is the source of progress and if one holds to the notion that a science of education that will eternally fix things is either possible or desirable, he is, in my opinion, on the wrong road. Each generation, each community, each teacher, must work it out. Just as soon as the leaders settle a point and others unthinkingly follow their plans, the point is unsettled. It is, after all, the "hungering and thirsting after righteousness," and not the blind following of the commandments, that has the promise in the Beatitudes.

It is possible and desirable to settle some things by a strictly scientific procedure—by observation and experiment, deduction of hypothesis, and verification—all quantitatively. The things that can be thus definitely settled relate chiefly to the mechanical phases of education and to the mechanical aspects of individual activity. The other sort of scientific study, the study that seeks to find out the truth and with this truth to make men better, is not quantitative and is not ultimately definitive. It leads but to a viewpoint apparently in harmony with ideals and existing facts. But both the ideals and the seeming facts change, and hence each man must, in a way, work it out for himself; and so must each community and each generation.

H. E. KRATZ.—"Scientific study" is rather vague. I must admit Dr. Halleck's direction of the discussion in the Atlanta meeting was looking that way. That report from one member in the Milwaukee meeting, concerning some phases of the thinking of blind and deaf children seemed to me another feature of "scientific study."

FRANK A. MANNY.—The college teachers come nearer to the scientific side of education in a narrower sense. I do not believe, however, that those of less pedagogical training should be discouraged from considering that they are making contributions in this field. It is very hard in an organization which includes workers all the way from the superficially descriptive to an intensively explanatory view to appreciate the value of each other's work.

F. M. McMURRY.—By scientific method applied to education, I understand the acceptance of some specific problem or hypothesis as the topic to be investigated. Then such a use of data and logic as will produce conclusions that are convincing to outsiders. The two sources of the data may either be books or children.

M. V. O'SHEA.—I find it impossible in a brief space to give any satisfactory statement of my conception of scientific method in education. The first part of my Education as Adjustment is devoted to a treatment of this subject. In brief, scientific method consists in applying some definitely measured standard to the subject you are studying. In education this is extremely difficult, because every problem is so complex, and there are so many factors operating to produce any effect, that we are not likely to get at each one and measure it precisely. This is, however, the work which our scientific society should undertake. I have suggested methods of accomplishing this in Chapters II and III of the book to which I have already referred.

G. D. PICKELS.—Method in the most general sense, involves accumulation of data touching the problem in hand, a careful analysis of the accumulated mass in the light of some preconceived hypothesis, and finally, synthesis of the results of the analysis into a body of co-ordinated truths. The working hypothesis must be based upon such facts as the present state of knowledge affords. Data must be sought in history, in the mental life of children and adults, in current educational practice, in the attitude of the popular mind toward the training of children and the work of the schools, and in the conditions of life and the needs of the individual and the race. No rules of practical value can be given for finding data or analyzing them when found; only the genius of the thinker can determine the mode of procedure. When a doctrine has been formulated, it is necessary to determine its limitations, which lie in other doctrines of greater or less comprehension, and in the conditions under which the formula must be applied. It is finally necessary to test it in practice, in order to ascertain its possibilities for good and evil, according to the manner in which it is applied in practice, and the degree of emphasis laid upon it. This requires patience, and careful comparison of statistical facts. A generation or more may be barely requisite to prove the worth of a given body of doctrine. Every possible theoretical test should be made before there is resort to extensive and enforced use in the schools. Conservatism, which admits improvements cautiously after the fullest proof, should mark every recommendation of the Society.

STUART H. ROWE.—A scientific study of education implies a rational classification of educational phenomena. It implies, therefore, (1) a study of philosophy, psychology, ethics, sociology, physiology and hygiene; (2) the organization of applications of these sciences in the concepts and relationships fundamental to adjustments of the child to his environments. It also implies the theoretical deducing of applications to individual conditions with careful weighing of the effects of conflicting possibilities and the final trial experimentally; but it also includes reasonable experimentation where the original suggestion is due not so much to any conscious deductions from pedagogical theory as to a subconscious or intuitive judgment of the possible efficiency of certain devices or methods, the pedagogical status of which may be more difficult to determine than their efficiency.

MYRON T. SCUDDER.—(1) Gathering data on some given point, (a) by careful, accurate observation, experiment, etc.; (b) or accepting the results of similar work on the part of others who are well known, experienced, careful and competent investigators. (2) Drawing inferences based on the above, subjecting them continually to the test of experience and reviewing them in the light of further research, data, etc. Occasionally hypotheses may be ventured upon, showing possible direction of future research. (3) Stating these results clearly and concisely without bias.

DAVID E. SMITH.—A good balancing of (1) the historical phase. How came this to be as it is? (2) The psychological phase. When is the learner ready for these various subjects, and how are they best presented? (3) The question of utility. What use is the learner to make of this thing? In the broadest sense this includes the culture values, and hence might be called educational values.

DAVID S. SNEDDEN.—Very hard to give. Any systematic and careful study ought to be called scientific, provided the investigator can justify his conclusions. Education may suffer from the over application of methods more adapted to concrete sciences, just as it has suffered from too much "dialectic." Let us not worry too much about method, but seek rather to formulate aims in more specific terms than is now the case. We need much work in this direction, and in the direction of agreeing upon terminology. Why not have a committee on terminology which might annually issue a report on suggested definitions, which might be generally accepted when a majority of members agreed?

EDWIN D. STARBUCK.—(a) Experimental methods should largely supersede questionnaire methods. (b) The methods of description and analysis are legitimate as science but they should dovetail more intimately with the sciences like psychology, biology, sociology, and others, which are closely related to education.

JOSEPH S. TAYLOR.—Science according to my conception is verifiable knowledge, and a scientific method of studying education is a method of observation or experiment conducted in such a way that any student in any part of the world may repeat the observation or experiment, and either confirm or refute the conclusion drawn by a previous student.

So far as possible, in order to be scientific, a study of an educational problem must be quantitative in character. Data should be gathered in such a way as to insure absolute accuracy, and there should be enough of them to justify a broad conclusion.

E. W. WALKER.—I understand that "scientific study of education" means a study of the experiences or processes by which the mind develops. This will naturally be supplemented by the organization of a system which shall in its best form give to the child these experiences and processes when they are once determined.

SARAH J. WALTER.—A special study of special problems by people, (practical workers) who have the time or can take the time to visit, study, and report upon a large number of typical cases. Lastly, a comparative study. Some of the work has been most unsatisfactory because too limited in range.

SOME RECOMMENDATIONS.

In considering the present needs of the Society and the outlook for its greater effectiveness, I am led to make the following suggestions. These may not be the wisest nor the most necessary. Others may be substituted or added. The important thing, however, is that we take such measures as will give the Society greater definiteness and permanence of character, continuity of policy, and effectiveness of work.

The first decade of the Society's history closes with this year. During this time it has stimulated much thought, focusing it upon some of the most vital theoretical and practical educational problems of the period; while at the same time some valuable contributions, both theoretical and practical, have been made to the literature of education. If during the next ten years the Society should make a rigorous study of a few of the great fundamental principles of education, testing and modifying current practice in the light of these principles and publishing results in the Yearbook, it would thereby demonstrate its reason for existing. The synthetic outcome would be a more or less well-organized view of the data of the science of education. These data would furnish standards for testing current practice in instruction, organization and management, administration, and legislation. The suggestions are—

1. That a representative committee be appointed to study and report for the Yearbook what is considered to constitute the best course of academic and professional training for secondary teachers. This is necessary as a logical sequence of the study of the education and training of secondary teachers as presented in the Fourth Yearbook, Part I.
2. That a committee or a member be appointed to study and report how superintendents or principals of high schools can most effectively continue the professional preparation of their teachers. This committee is called for because the post-school preparation is the most important part of a teacher's training, but is too generally neglected.

3. That a committee be appointed to study and report on the data of the science of education as derived from (1) philosophy, (2) psychology, (3) physiology, (4) sociology, (5) ethics, etc. There are many reasons why the National Society should gather up and present in a well-organized whole these data. (This comes from Mr. F. G. Blair.)

4. Two members have suggested that a permanent committee on terminology be selected to report on usage and make recommendations from time to time. The distracting, confusing, and immature state of the nomenclature of psychology and pedagogy entirely justifies such a committee.

5. That representative members or committees be appointed to study and report on the best course of study for the grades in (1) arithmetic, (2) language, (3) geography, and (4) manual training and domestic science.

6. That a committee be appointed to study and set forth the facts concerning the culture or disciplinary value of vocational subjects, and if the facts warrant it, present in cogent terms the reasons for recognizing work done in these lines as college-entrance qualification.

7. That our constitution and by-laws be revised to date.

M. J. HOLMES, *Secretary.*

.



100%

THE FIFTH YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART I

ON THE TEACHING OF ENGLISH IN ELEMENTARY
AND HIGH SCHOOLS

BY

GEORGE P. BROWN
Editor School and Home Education

EDITED BY

MANFRED J. HOLMES
SECRETARY OF THE SOCIETY

MEETINGS FOR THE DISCUSSION OF THIS YEARBOOK WILL BE HELD ON MONDAY,
FEBRUARY 26, 1906, AT 7:45 P. M., IN THE WARREN MEMORIAL CHURCH,
AND ON WEDNESDAY, FEBRUARY 28, AT 4 P. M., IN THE LECTURE ROOM OF THE
FIRST CHRISTIAN CHURCH, LOUISVILLE, KENTUCKY

COPYRIGHT 1906 BY
GEORGE P. BROWN
BLOOMINGTON, ILL.



OFFICERS AND EXECUTIVE COMMITTEE

EDWIN G. DEXTER,
University of Illinois, Urbana, Ill.,
President

REUBEN POST HALLECK,
Male High School, Louisville, Ky.

CHARLES A. McMURRY,
State Normal School, California, Pa.

C. P. CARY,
State Superintendent, Madison, Wis.

JAMES H. VAN SICKLE,
Superintendent of Schools, Baltimore, Md.

MANFRED J. HOLMES,
Illinois State Normal University, Normal, Ill.
Secretary-Treasurer
and
Editor of Yearbook

CONTENTS

	PAGE
ON THE TEACHING OF ENGLISH IN ELEMENTARY AND HIGH SCHOOLS—<i>George P. Brown</i>	5-65
I. The Point of View - - - - -	5-15
II. General Principles and Suggestions - - - - -	15-21
III. Method in Primary Grades - - - - -	22-29
IV. English in the Higher Grammar Grades - - - - -	29-44
V. English in the High School - - - - -	44-60
Summary - - - - -	61-65
THE TEACHING OF ENGLISH IN THE PRIMARY GRADES OF THE CLEVELAND PUBLIC SCHOOLS—<i>Emma C. Davis</i>	66-75
I. A General Survey - - - - -	66-70
II. Fourth Grade Reading: Directions to Teachers - - - - -	71-75
COMPOSITION IN THE PRIMARY GRADES OF CLEVELAND	76-80
I. A General View - - - - -	76-78
II. Fourth Grade Composition Work - - - - -	78-80
 <hr/>	
WHAT IS "SCIENTIFIC" METHOD IN THE STUDY OF EDUCATION?—<i>Edward L. Thorndike</i>	81-82
REPORT OF THE SECRETARY	83-88
I. Minutes of Meeting at Asbury Park - - - - -	83-85
II. Notices to Active Members - - - - -	85-87
Financial Statement - - - - -	88
CONSTITUTION OF THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION	89-90
LIST OF ACTIVE MEMBERS	91-94

THE FIFTH YEARBOOK---PART I

ON THE TEACHING OF ENGLISH

I

THE POINT OF VIEW

One who takes life seriously, and so undertakes to discharge an important duty to society, will be unconsciously influenced and in a large measure directed in the performance of that duty by his "view of the world." Is the universe one process of infinite complexity—an organized unity—or is it a conglomerate of misfits at which its Creator and man must be ever tinkering to prevent anarchy? It is especially fitting that the teacher should ask himself such questions, and there is a peculiar fitness that the teacher of English should make his view clear on this matter.

Man's view of the world involves his view of the purpose of his being in the world. Every one must estimate this purpose and answer all similar questions for himself. No individual and no institution can do it for him, provided, always, that he takes life seriously.

It seems as if human thought is settling down to the conviction that the universe is a process composed of an infinite number of inter-related processes. Emerson would call the motor force which organizes these processes into a system, the instinct of the process. Instinctively star-dust evolves into Nebulae; by instinct a Nebula becomes a planetary system; instinctively gravitation supplies the conditions for chemism, and chemism for life; the crowning work of this instinctive process is the coming into being of feeling and of the self-conscious soul. Thus far, objective science seems to trace, in the rough, the process of creation.*

*By virtue of the quite recent discoveries of Dr. M. von Schroen, professor in pathology at the University of Naples, Italy, it is scientifically

Subjective science now takes up the investigation with a view to discover something of the nature of this instinct, or primal cause, and the soul's relation thereto. It discovers that feeling, as sensation of pain and pleasure, evolves into emotion, and that one of its specializations aspires to attain some end, or creates ideals. In response to these desires the soul adds intelligence to direct, and will to persist in the attainment of these desires. That all these phases of activity grow in response to the need of this instinctive potency to attain more fully than it has yet attained, seems to be a legitimate conclusion. The working principle of evolution is that changes come as the need of these changes becomes imperative.

Investigation of the act by which the soul, as intellect, can judge and so learn how to direct its aspiration to the attainment of its object, reveals a process so new and wonderful as to place the being who can do this thing far above any other class of beings that has appeared upon the earth. By this new process the instinctive soul of the world comes into consciousness of itself. It can project itself as object, and at the same time identify this object with itself as subject. Such an act no lower order of being can perform. The product is the judgment "I am myself."

The name "I am" was given by the Jews to the Supreme Being; as if they regarded the making of this judgment a symbol of supreme power.

This power to know the self involves the power to know any single attribute of the self by the same process—as "I am

legitimate to speak of a genesis of species in the mineral kingdom, as well as in the kingdoms of plants and animals.

The biological view held hitherto by science admits of no other procreative agencies than those manifested in the vegetable and animal cell. But Prof. von Schroen, under the full blaze of scientific test-conditions, makes the discovery that the formation of a crystal proceeds under the sway of the same principles of growth as do the formative processes in the organic world. And he assures us with the seriousness of a savant, that the world around us in its undivided entirety, is a solidary, inter-related, identical unit, animated by the same life impulse, proceeding along the same processes of growth and development, and heading for the same ultimate goal of love, intelligence and power.—Dr. Axel Emil Gibson, *The Dietetic and Hygienic Gazette*, July, 1905.

thinking," in which the ego utters its consciousness that *thinking*, the object in its judgment, is identical with its own act and to that extent the same as the subject. This process of the self in making itself its own object is called by the philosophers "subject-object."

This objectification of the self and its return enriched is the process and the only process by which knowledge is accumulated, and so the power to direct the aspiration in the pursuit of that to which it aspires is gained. Man early formed the judgment, "I am thinking," but it would remain a merely analytic judgment until the act returned enriched by some addition, such as *that the earth is a sphere*. Such an addition makes the synthetic judgment and is the sole instrument by which the soul's knowledge is augmented.

It is this instinctively judging self, considered apart as a distinct phase of the ego's activity, which is called self-consciousness. In the act of forming a judgment it ever separates into subject and object, and at the same time identifies the subject with the object. In this act the self is both subject and object. Every completed judgment begins with the thinker or self and is completed when its other self, the object, is identified with the subject. Some one has said (Dr. Harris, I think,) that in each stage of the process of evolution of the world, this active instinct has been striving "to look itself in the face." This is attained in man.

Now, from this investigation, it appears inevitable—

1. That all of one's knowledge is brought into existence by himself. It is knowledge when it conforms, is consistent with, the experience of others and with his own experience. He creates many predicates for his judgments which are not knowledge, e. g., in his dreams and flights of fancy. His imagination is more apt to supply predicates that are true. His senses are his principal sources of knowledge until he attains the age of reason.

2. There is cumulative evidence as well as instinctive faith that there is a correspondence between the processes in the ex-

ternal world—the macrocosm—and those of our own consciousness—our microcosm—which we instinctively act upon and live by.

3. Modern science proclaims that the external world is a reality which man recreates to the extent that he knows it. The soul, like Kepler, the astronomer, is “thinking God’s thought after him.” The inference is irresistible that he does it by a similar method.

Man desires to know the truth, and the purpose of his intellectual life is to discover the way and direct his steps in the pursuit of it. This non-materialistic view of the external world is a hard doctrine for the mass of mankind, but the recent discoveries of physical science seem to establish the fact that there is no dead matter in the world; that matter is like thought in that both are processes or phases of activity; they differ in that one is a different form of activity from the other.

This cycle of Source, Separation, and Return, which man discovers in his own thought, has many correspondencies in the processes of the natural world. From its source in the ocean the stream rises in vapor, falls upon the earth and returns again to the sea. From the seed comes the plant, which produces again the seed. Morning rises into day, sinks in the west, and rises again in the east.

The solar system rises from star-dust and is to pass on into star-dust again. Everything in nature moves in cycles or in arcs of cycles. This has a startling significance.

Again, in the world of man we find similar correspondencies:

In the American government the power is in the people collectively; they embody it in a chosen administration and at stated periods it returns again to the people. In the court of justice the deed which the individual citizen has uttered is made to return upon the doer.

In institutional history we can find this principle of separation and return ever active. This is especially true in literature. Original Source, Separation, and Return, are the found-

ation process from which every great literary creation grows. It is found—expressed or implied—in every system of religious thought that man has constructed.

Man is coming now to the conviction that the Absolute Cycle from which all minor processes spring, is the Absolute Ego or Person; the objectified system of the processes of Nature; and the return from this separation to the source through man, the image of his Creator, who is to become “perfect as his Father in heaven is perfect.”

Now the interesting fact to be inferred—by what appears to be a scientific procedure — from the acknowledged facts above set forth, is that the human soul is the active agency by which the cycle of the universe is to be finally completed. Man is to become identified with God by thinking his thought, willing his will, and thus achieving his love. To love with a divine love is the highest aspiration conceivable to man.

God has created man, by this long process of evolution, with power to re-create God in some measure and in an infinitely increasing measure as he advances in his evolution, by loving, willing, and thinking, what is God’s love, and will, and thought. It is thus that he shall become one with the Father, as was taught by Jesus of Nazareth.

From such a view of the world as is outlined above metaphysics disappears and an enlarged psychology takes its place; a psychology that includes nature and God in its scope.

Metaphysics has been thought to deal with the true reality, while physics, including psychology, concerned itself with the phenomenal, the mere appearance (illusion) of the reality. But God, the world, and man are all one psychical process, no arc of which is any more illusion than another. Since man knows only what he creates or re-creates, every science and every object which man knows is a psychological process. God actualizes his psychical processes. Man with his present limited powers can only realize his. But man can actualize his own process to some degree for he can create a form of government that goes on actualizing itself in states and in small communities.

But here opens up a line of thought which is foreign to the purpose of this writing.

We repeat that the Absolute Psyche is identical with the limited psyche, in some degree, in every object of nature and in every human soul. It is the function of education and especially of school education to recognize in the child the possibility of a continuous growth in this identity and to promote it in every way that is open to the school.

It is by the copious inflow of the soul of the universe into the soul of the child through avenues which it is possible for the school to open, that his life becomes in a larger measure one with the soul of the universe in love, in knowledge, and in will. Growth toward manhood is not dependent, in America, upon the unconscious working of the principle of the survival of the fittest, or natural selection, but it has become the conscious purpose of the various institutions of society, and especially of the home and the school. The church is awaking to the conviction that the new view of the world opened up by the discovery of the evolutionary process of creation is a call to new methods and different material for the religious education of the children. We are all coming to see that there is no gulf between secular and religious instruction; but that both have the common purpose of making the great love of the universe prevail in the hearts and purposes of men by man's thinking His thought, the true, expressed in nature and in the lives of men, and by willing His will in our deeds of justice, mercy, and loving kindness.

"But," it is objected, "You are shattering the foundations of thought, rock-ribbed and ancient as Greek philosophy. To re-construct life upon such a basis, and to so interpret the purpose of instruction, would require that we reconstruct our system of thought, which we have spent our lives in building up. You are confounding metaphysics with psychology, the religious with the secular, the science of nature and natural religion with religion."

Well, this discussion is not addressed to such objectors.

Gallileo, Copernicus, Luther, Socrates, Darwin, Jesus of Nazareth, were crucified in fact or in spirit by such objectors. They are joined to their idols; let them alone. Evolution has opened up a new view of the mutual relations of God, man, and the world.

"New occasions teach new duties."

Life has both its fluid and its congealed strata. Both are necessary. I have often thought that man fortunate who remained hospitable to new fundamental ideas. Evolution seems to be a complex of progressive, stationary, and retrogressive processes. They will all be found at every step in its advance. My purpose is to seek such light from evolution as will illuminate the path to a more natural and rational method of teaching the children.

The truth seems to be that evolution is fast removing some of the foundation stones of the long-established process of thought in more than one department of life, and is putting supports of more modern material in their places. So far no danger of a cataclysm has become apparent. The danger threatening society today comes from the failure in former years to make regnant in the souls of the children the processes which this new view of the world declares to be imperative.

GENETIC PSYCHOLOGY

Genetic psychology is founded on the theory of Evolution. Man in his prenatal growth, it is reported, conforms to this theory by passing through a series of forms of the animal kingdom. He enters upon his postnatal career in human form, and with psychical potentialities of great promise but at the zero point of attainment. The symbol of a blank sheet upon which others may write his life will no longer serve. He himself is to do the writing. He is potentially a self-directive being, but his infant self-activity is less than that of the animal world from which he has emerged. The greater his possibilities of attainment in the scale of being, the longer is his period of helpless infancy; as if the soul of the

universe had provided that man, the culminating arc of the great cycle of creation, shall lie fallow for a time in the beginning of his career, while the energies are organizing for the mighty work they are to do.

He has inherited tendencies of body and predisposition of soul from his forbears, human and prehuman, which will prove lines of least resistance in his instinctive efforts to attain. Some of these lead upward, some downward. But history and experience prove that he may be early inoculated with other germs which will draw the nutriment from these inheritances and so slough them off from the process of growth. The same principle acts in the lower world under the greater limitations of that world. This invariable law of growth is the basis of the teacher's hope; more than that, it is the basis of his firm reliance on the effectiveness of education in redeeming the soul from its degenerating tendencies and in promoting its advancement toward manhood.

The child, after birth, enters upon a series of psychical changes which repeat the psychical changes in the growth of the race in a way corresponding to the physical changes in the prenatal growth of the body. The force and influence of these inheritances may be, and often have been, overestimated. But they have force and influence all the same, and when interpreted in a large way are of commanding importance in determining the matter and method of procedure in different stages of the child's development.

1. The feeling instinct was the commanding activity in the infancy of the race; it is the commanding activity in the early years of childhood. Indeed is it the commanding activity in every stage of life. Pleasure, happiness, joy, love, stimulate and foster the growth of the soul; painful emotions retard it. When the pleasurable affections attach themselves most strongly and most actively to the educative process which the school seeks to foster, the soul advances most rapidly in its achievement of character. The child enters life with a song in its heart and

on its lips, also, unless there is an abnormal condition of the body.

It is the contention of the writer that feeling, in some of its forms, is the controlling activity in the lives of men, as Divine Love is the commanding activity of the universe.

2. Another process, inherited from the remotest ancestors of the child, is memory—"the thread." as Emerson remarks, "upon which the beads of life are strung"—the matrix or cement which holds the experiences of the past in close contact with the consciousness of the present. It has been ever present on the evolutionary journey from star-dust to child, being the force of gravity which holds the universe together and becoming conscious first as feeling. The child's memory is of that rugged, wild, tenacious sort, holding a multitude of unrelated facts together, without purpose and without effort, provided only that joy attends upon the act. This immense native power may be dissipated by the unwise influence of the home and the school: memory, without which there were no connected life, and no possibility of growth.

3. Besides these endowments the child has brought with him from below the instinct of imitation, without whose introduction to the new world which he has entered he would be in sore distress; but which, continuing too long as guide, works irreparable injury by arresting the growth of the child. Mechanism is an essential adjunct to development, but imitation is too primitive a form to be fostered after the power of personal initiative has begun to bud. It is ever active in the life of man without any fostering care.

4. The imagination of the normal child overtops every other distinctively human instinct. It is the creative instinct of the infant soul, running wild as it once did in his ancestors. It is his richest inheritance and should be given a free rein. It calls for direction but its repression is a fatal mistake.

The affections must run parallel with all intellectual activities, and these latter must be employed in directing the pursuit of educative desires. Giving direction to the realization of

desires was the original and yet remains the normal function of the intellect.

The will naturally follows the stimulus of the desires in kindergarten and primary training. The child knows no distinction between feeling, will, and intellect, but the teacher needs to make such in her own thought, in determining the processes she will use.

5. Later, especially in boys, there comes a time when imagination and the benevolent affections yield their leadership to a sterner motive, which may be characterized roughly as love of power. This strikes the normal boy at about the age of ten. The body is compact and strong and the intellect is alert in the achievements of physical prowess.

This condition seems to be an inheritance from a remote ancestry, when savage and brutal man combined in tribes for defense against enemies, or for aggressive warfare. This stage of evolution probably continued for many ages. It was the boy epoch in the growth of the race, which fact would seem to justify its occurrence in the life of the modern boy. It was not in individual strife so much as in tribal struggle under the law of the survival of the fittest, that man developed toward manhood in this epoch. We seem to be far at sea and widely variant in our conclusions as to the natural method of solving the educational problems of this stage. But two things are suggestive:

(a) The physical and mental vigor of the child suggests that this is a period for driving him hard in mastering the mechanics of knowledge.

(b) His ideals are not lofty but he has an active appreciation of justice and loves conflict and victory. His Quixotic disposition and impulses open the way to the ingenious teacher to set him battling with the giants that beset his path.

6. Finally comes the transition from boyhood and girlhood to manhood and womanhood; a period, until recently, not differentiated from others in the onward progress of life. Dr. G. Stanley Hall's great work, *Adolescence*, has revealed much

that was formerly unknown, and awakened a widespread conviction of the supreme importance of further study of the problems therein suggested.

I have called attention to some of the guideposts and danger signals along the way of education from infancy to maturity which genetic psychology has set up. They point to the affirmative instruction and training, both in matter and method, required in these different periods of development; and they suggest a rational method of dealing with the negative tendencies toward degeneration involved in the process of evolution.

The purpose of this elaboration of a point of view from which to teach English has been to suggest the need of having some theory of the universe, consistent with the experiences of the human race, by which to guide our course in fitting the young to pursue a rational and inspiring theory and practice of life. This point of view is not a new one to the modern scientist, but most school teachers have not yet seriously studied its requirements in the teaching of the child. The theory of an evolution *which is directed by a purpose* is the central thought of a newer education than that of our grandfathers.

II

GENERAL PRINCIPLES AND SUGGESTIONS

1. The teacher of English or of any other subject, whether in the kindergarten or in other grades, will need to take account of the psychic endowments of the child. Imitation, memory, and imagination, the child's instinctive soul activities of immense power, have been gathering and putting into form the experiences of life since the first dawn of consciousness. With this accumulation as a basis, the school seeks to create an environment which shall direct these native impulses along lines that shall be in harmony with the natural growth of body and soul, and shall at the same time put order and system, in some measure, into the processes of this growth.

2. The governing principles of the *survival of the fittest* and of *unconscious selection*, under whose direction the race slowly advanced through long ages, seem to have worked regardless of the great waste of energy that attended the slow progress in the development of the soul. The school is these unconscious processes now evolved into self-consciousness, and it undertakes to direct the growth of the child toward the goal of his own self-consciousness by a shorter and more economical route. Adopting the figure of Socrates, the school is the midwife presiding over the birth of the child's soul. It is not until recently, and even now only in spots, that the school has risen to this consciousness of its function.

The instinct of the vegetable world has recently become conscious in the florist and the horticulturist; and so too has the instinct of the animal world as manifest in the higher attainments of animal life made possible by man's knowledge. It was not long ago that Rousseau declared that unconscious nature was the only fit teacher of the child, and the educated class has been proclaiming with approval his pedagogical doctrine for a hundred years. Man has only recently discovered that he himself is the instinct of the world awakened to the consciousness of his divine office in advancing creation.

3. The imaginative instinct of the child is poetical. Imitation and memory are prosaic. In English, as well as in everything else, the soul should feed upon the best that it can assimilate. Literature is found in every grade of English composition from Mother Goose to Shakespeare. The artistic sense belongs to the emotions and is prominently active from the beginning of conscious life. Give in every grade the best that the stage of development will receive gladly. But it is of supreme importance that in attempting to obey this injunction there shall be no attempt to force the growth of a literary taste. The child can appreciate beyond its power to think, but not far beyond. It is a common error to mistake the influence of the teacher's musical voice and speaking countenance, and sympathetic gesture upon the child, for appreciation of the

English. The story of *The Old Dog Bowser*, has many applications throughout the journey of life.

4. Another injunction of nearly equal importance is that we leave food which is palatable to nourish the soul after its own fashion. Not that its impression is to be left to fade away; by no means. Opportunities must be given it to express itself in some other connection. But having planted the seed wait for the fruitage; not neglecting, in the meantime, the dew and the rain, and the fertilization of the soil.

5. Another too prevalent error is to confound *thoroughness* with *exhaustiveness*. Children cannot study anything exhaustively; but what is worth doing should be done thoroughly. It is worth while that the child shall live as much as possible in an atmosphere of good English. This means the reading, listening to, and reciting of good literature, and an abundance of it. There should be a wide range of choice, also. A *feeling* for literature is an endowment common to all. A *form* attractive to one may repel another. What is congenial—gives pleasure—should not be dismissed until its impression has been made. But the teacher will not gauge the impression to be made upon the child by the impression made upon himself. Our ability to put ourselves in the place of the child will be the measure of our success.

6. The last suggestion, and one of commanding importance, is that the English studies at every stage shall be valued by the teacher chiefly for their influence in forming ideals of life. The sordid aspect of life is impressed upon the child at every turn. It is everywhere in evidence except in comparatively few homes. The child is not having a fair chance. If the school does not help him to one there is little hope that our present "hot pace" in moral degeneration, especially in the economic world, will be arrested in the near future.

The purpose of this writing is to set forth the governing ideas which should determine the teacher's practice in giving instruction and training in English in the elementary and high schools. The details of the process are not attempted and

would be of little value to the experienced teacher. A hand book of practice for each grade, for teachers of little experience, would be necessary to fully complete the writer's idea of a pedagogical discussion of the subject.

English is the life of the people who use the English tongue, in so far as that life is uttered in our language. It is one of the infinite variety of forms in which the life of the world utters itself. English is a live thing, therefore; many of our failures in teaching it arise from presenting it as a dead thing. Life is its substance, its meaning, and the word is its form. The meaning can be no more separated from the word than the vital force can be separated from the tree. When the life has gone out of the word it is no longer a word.

Language grows in the child, as in the race, from inarticulate to articulate sounds. The first utterance of the child is through musical tones, and is an expression of love; the joy of living. Until he enters school, the words he uses are for the most part, what Dr. Earle calls "presentive words," as distinguished from the symbolic. The meaning and the form are one and the same to the child. He, like the lowest savages, cannot conceive of a thing that is called by a strange name. Alfred Russell Wallace tells of the natives of the Malay Archipelago who would not believe that there could be any country called "England." Such a name was too absurd. "No country could be called that." The same incredulity has been noticed in children. In his *Philology of the English Tongue* Dr. Earle tells of a six-year-old boy who refused to call his brother, in their play, "Polyhymnia," declaring "nobody couldn't be called that, I'm sure." A polyhymnia was to him a thing unknown and impossible.

Not until the child begins to use graphic signs in expressing meaning does he approach any clear distinction between meaning and its form. So fixed is his habit of sounding every meaning that during the early years of his school life, and sometimes on to old age, he translates the graphic symbol into

a sound-meaning before he can use it. To attach meaning directly to the graphic form is a later acquirement, if it is ever learned. The graphic symbol is to him the sign of the meaning as *sounded*. Considerable analytic power must be acquired before the distinction between the *sound* and its meaning can be made. This conscious distinction between sign and thing signified, in learning English, is often attempted too early in even our best schools.

The early introduction of graphic English, so prevalent in all good schools, first by the teacher on the blackboard before the children, and later by the children themselves, is one of the most valuable improvements in the work in English in the primary grades during the last century. Like all other distinctions in the child's progress in knowledge this one, between meaning and form, is long in the sub-consciousness before it rises above the threshold.

The mastery of the graphic and the sound elements of words is the mechanical demand of the early period of English teaching. Without such mastery progress is slow and uninteresting. Much depends upon the method pursued. The key to the natural and most effective method is found in the way the child has learned to talk before entering school. During that period, the meaning has always preceded or accompanied the expression. The school seeks to teach expression by suggesting an interesting meaning which the child deems it worth while to express. While the meaning has the major emphasis in all teaching of English, there are certain drill exercises for the mastery of graphic and sound forms that must be practiced with systematic regularity. But these drill exercises should never be regarded as lessons in English. As well might the carpenter say that the making or repairing of his tools belongs to the process of building a house. The study of the construction of words can be made as interesting as any other, but it should never be mistaken for a study of English. And yet the use of the word in English should not be ignored while teaching its form.

The sound-form must be mastered as the foundation for oral expression, and the graphic form for proper eye-symbols of meanings. Power to spell words by sounds and by letters (analysis), and to construct words in oral and written composition (synthesis), is a necessary part of the child's equipment for learning English. It is a mistake to assume that this can be done incidentally. It is as great a mistake, in the lower grades, to interrupt him in his attempts to express his own English, by too exacting demands for correct forms, oral or graphic. If his form grows *pari passu* with his power to think it will best correspond with his natural growth in other things.

Along with this mastery of forms and as the commanding activity in it, are—

Interpretations of English (reading).

Conversations (oral composition).

Written compositions.

Much reading is the source of power in interpreting the printed page. Conversation and oral reproduction by the pupil of things learned cultivate the power of personal initiative and alertness in thinking. Written composition gives the child practice in original thought and in its expression by the long circuit through the fingers.

This elementary field is the one to which the injunction to learn by doing is especially applicable. It has been neglected and often wholly ignored in the practice of the past, and the poor results in English in the schools are largely due to this neglect.

"As the twig is bent the tree inclines" is especially applicable to the teaching of English.

The leading mind-forming activity of this elementary period may be characterized as sub-conscious synthesis. It should be continued until the child begins to feel an interest in analyzing things.

The psychic activities of synthesis and analysis involved in the study of English from the primary grades to the end of the high-school course, may be roughly outlined as follows:

1. Unconscious synthesis and analysis during the first six grades, with the analytic factor slowly rising above the threshold of consciousness.

2. The movement during the last two years of the grammar school and the first year of the high school is analysis as the leading conscious activity with a growing consciousness of synthesis or unity of the parts into an organic whole. An organized unity may be apprehended years before it is comprehended.

3. The third phase of growth, which it is the function of the high school to nourish, gives the major emphasis to conscious synthesis, and makes conscious analysis auxiliary to this end. The result sought is a comprehended organized unity not only of the subjects studied but of all studies into a view of the universe as an organic unity. A rational view of the world is impossible to one who cannot see the unity of all its elements, both physical and spiritual.

I have said that the high school should *nourish* this growth. No one is educated until he has attained it. How far we are from its attainment may be illustrated by the answer given by one of America's literary scholars to the following question, sent out by the National Council of Education:

"What changes in existing conditions will tend to make our schools (elementary, secondary, and higher) more effective in preparing the pupils for real social efficiency?"

He answers the question thus:

1. "Simplified spelling."
2. "Simplified spelling."
3. "Simplified spelling."
4. "More drill in arithmetical computations and less puzzling problems."

This gentleman is the maker and the publisher of many excellent books which take a larger view of our needs, and he ranks among the men whom the National Council deem it important to consult upon this fundamental question, and they publish this contribution of his to the literature of education.

III

METHOD IN PRIMARY GRADES

A modern method of teaching ought to look for its foundation purpose and principles in the modern view of the world. It has been assumed in our introduction that this purpose is to make the great Love active in the universe, prevail in the hearts and purposes of men through thinking His thought—the true in nature and in the lives of men—and by willing His will in their deeds of justice, of mercy, and of loving kindness.

The child in the kindergarten and the primary school is very close to the animal world—to nature. Words are not, in the present stage of the development of the race, his inheritance. But he has a multitude of other inherited ways of expressing himself. These he brings with him to the school, and the school should make free use of them. These strong, wild psychical powers of imitation, imagination, and memory which are clamoring for exercise and expression must not be repressed, but, rather, directed in ways that will give a variety of interesting experiences. He is to work *consciously* to attain a purpose under the prompting of a *desire*. The school's function is to supply the environment favorable to the awakening of the desire. This describes the spirit of the directive influence of the kindergarten, and the primary school; indeed, of all elementary and high schools. The manner of administering this spirit is the province of the teacher, solely. Her speech, manner, and voice are three elements of the child's environment of commanding influence. The order in which these elements are named suggests the order of their increasing influence. A musical and sympathetic voice, when the spirit of the teacher is expressed by it, is of the first importance; but a sweet spirit will shine from the eyes, and find utterance in the words and tones even when both are inadequate. But happy is the primary teacher who has a sympathetic, musical and cultivated voice.

The main reliance for the education of these children is on the conversation between children and teacher, hence the need that the teacher talk well. Much talking on themes of interest, which lead to the coming in of educative ideas and feelings, is the method *par excellence* for opening to the young child the way to the learning of English. At the beginning nothing is to be uttered for the sake of the form, but only for the sense. When the right word is not at hand, the teacher quietly suggests it or the child uses some of his other modes of utterance.

Let us ever remember that words are not instinctive to the child, like gestures and tones of voice, and that the words are to be improved only so rapidly as it can be done without obstructing the interested flow of the child's thought and feeling. Imitation and memory are strong, and these are the teacher's grounds for hope that the worst faults of the home training may disappear in time. When the atmosphere of the school room is redolent with good feeling and the teacher has skill to attach the thing to be learned to some affection or desire, a single presentation is often sufficient to establish it.

Little by little, throughout the kindergarten and the first grade of school, the child acquires some freedom in conversation in fields where educative germs are numerous. Young children do not grow in knowledge by the acquisition of logically consecutive ideas. In many homes these germs are few. The child's knowledge grows in spots, for the most part. Logical sequence is not felt nor desired. Their first acquisitions are a mass of unrelated facts, especially is this true of their school knowledge. In the home the, at first, isolated facts have widened their respective horizons until they have touched each other and some relation has become established. The primary grades can do much to encourage the mind to seek to connect its ideas, by judiciously emphasizing those which most readily fall into a connected whole. The teacher must work with the conviction that in the sub-consciousness of the child are the germs of all the emotional, moral, and intellectual activities

that are to be realized in the man. She must not underestimate his ability to appreciate what he has no language to express. There is often a response from the eye while the tongue remains silent.

IMITATION AND MEMORY

Imitation and memory do not need to be strengthened. They are already seizing upon everything to which the interest and affections attach themselves. To select the most fitting matter and work up its presentation to a climax, is the teacher's problem in promoting the acquisition of new ideas.

We have said that imitation is the main reliance. Imitation may have a much wider range than mere mechanical repetition. When we are listening to a story or a song, we are imitating as we follow the presentation of another. In this sense much of human life is imitation. How to make the imitative instinct grow into an initiative activity is the ever present problem for the teacher in every grade. How to make the memory join its mass of facts into a causal sequence, is the ever recurring problem in the cultivation of the intellect.

The evolution of these powers of personal initiative and causal sequence is slow. The art of the teacher is shown by supplying the environment and the exercise that will awaken the germ, and then by waiting for results. There must be no forcing the growth; but we can continue to enrich the soil by much reading and story telling and conversation.

The personal initiative in thinking is most easily aroused by conversations upon stories or other topics in which the children have a lively interest. The personal initiative stimulated by the manual constructions now prevalent in most good primary schools is of another sort, but every kind of personal initiative is helpful to every other kind. Anything that calls for results to be worked out in the child's own way is an exercise in original and self-directed power.

But let it be remembered that all the powers of the child are at bottom one power; all the energies active in the universe are in their essence one energy. This is the characteristic of spirit

as distinguished from a machine. Bearing these things always in mind, we shall avoid any attempt to educate the child in sections. There are no strictly departmental processes of the soul.

IMAGINATION

A free working of the imagination is only possible when there is a feeling of absolute freedom from any unpleasant restraint from without.

This feeling will be in the atmosphere of every school where love reigns. But let us not confuse love with sentimentality, nor freedom with mere animal impulse. Children are to be *trained* to freedom. The instinct to follow impulse is the germ from which must grow the child's impulse to follow reason. The problem is How to avoid the arrest of the sense of liberty in seeking to stimulate the growth of rational freedom. The wild imagination of the child is the inherited germ with which we must begin. How can it be tamed without arresting its growth? It must be done by the silent influences of atmosphere, and soil—the spirit of the school and the material and method employed. If the teacher's eye is riveted upon a course of study separated into weekly or monthly sections, there is absolutely no hope of success. Nor is there any greater hope of success when the teacher seeks to follow the impulsive wanderings of the child.

Too much repression is one cause of the arrest of wholesome growth, and too much license is an equally potent cause. We need to realize at every step in the process of teaching English that young children are poets. They are for the time the things they personate. A little experience in the world of reality forms the basis of a large experience in their world of unreality, their "sposin" world. But this "sposin" world is very close to the loving heart of the universe. It is the realm of that creative activity which finds its fullest utterance only in speech. The supreme joy of creating is felt by the child. His products are crude and irrational when judged by later standards, but to the young child the few combinations of

straight and curved lines in which he embodies these creations are paragons of beauty, and his language is to him exquisite poetry.

The free conversation-method including story-telling, relation of incidents, etc., is the best device of the teacher, who can use it, for avoiding the dangers of this Scylla of license and Charybdis of repression.

Before the child can successfully enter upon English expression through the long circuit of the fingers, he needs to have acquired great facility in the use of the short circuit, through the tongue. In the meantime while working for this facility he can learn the mechanics of the long circuit.

THE MECHANICS

It is not required of this brief outline, which undertakes to show merely the guiding ideas in a scientific procedure in teaching English, to devote much space to the discussion of methods of mastering the mechanics or to methods of procedure in any phase of the work. The changes in the psychical activity of the child from oral to graphic speech is the matter of chief moment. When these are clearly apprehended, the teacher is the best judge of the procedure for the particular school or pupil.

Graphic English is very modern compared with oral speech. It involves a discrimination which primitive man for many ages did not make—the distinction between form and meaning. To this reference has been made above.

Instruction in English should result in the habit, in the high school at least, of seeing the meaning as clearly in the graphic symbol as in the sound symbol. In other words, the learner should be able to interpret the printed page as easily as he can follow the same discourse in oral speech. This may dispense with the service of many of our orators, perhaps, but it will conduce to clearness and stability of thought when men can understand as well what they read as what they hear. The weakness of America today is the inability and, therefore,

he disinclination of the mass of the people to read a serious and logical exposition of any subject. The newspaper is their high water mark in English in respect to both form and substance. The average graduate from the high school and from the college must learn to read after he leaves school.

No doubt there is more than the difference between oral and graphic forms involved in this, but the continued inability to see ideas in graphic forms is the seed of the difficulty. So long as the reader must translate them into oral speech, he has not mastered the art of reading. Oral speech is the language of concrete images. Abstract ideas come in best from the graphic symbol addressed to the eye. We care not for the pronunciation of the word in reading abstract discourse, but chiefly for its visual form.

STORY TELLING

Story telling and story reproduction are the strong reliance of the primary school for training in English. Until recently, story telling has been no part of the primary curriculum. It is now fast becoming the "head-stone of the corner" in our estimate of its importance, but in our practice it lags far behind. This is because the teachers are not good story tellers. It is an art having its definite principles and rules, like others, and requiring much practice under judicious criticism. Our normal schools have not embodied it in their course of training, and have few expert story tellers in their faculties. They have been busy trying to make an adjustment of the matter and method of the established curriculum to the psychical attainments of the children, in so far as they have done anything strictly professional.

The schools must increase their estimate of the importance of training in the use of English in the first six grades. In the first three grades it is practically the sole vocation of the school. Other than manual training, arithmetic is the only subject in the curriculum demanding separate and serious attention. The importance of arithmetic in these first grades

has been greatly overestimated. In them it is solely of the applied variety. This does not exclude the learning of arithmetical tables in the third year—which is a mere memory process. Such tools of knowledge should be mastered while the mechanical memory is strongest.

In the fourth, fifth, and sixth grades the school should advance by slow approaches from the study of the mechanism of the word to that of the sentence. The mechanism of the sentence must be seen, from the start, to be determined by the meaning. This applies not only to the arrangement of words into sentences, but to the inflection of words as well. Difference of meaning requires difference in form or in arrangement of words. As the child's ability to form judgments grows, he is able to understand the mechanism by which these judgments are expressed. But all this preliminary study in these grades of the forms and uses of words in expressing meaning should be oral—study with the teacher. Textbook study and reproduction are too apt to degenerate into rote-memory processes when these lower grades study English from textbooks. Besides, the young student needs to deal with live thoughts active in his own mind, instead of with dead results of another's thinking.

COMPOSITION

Composition, oral and written, must grow as the child's ability to think consecutively grows. The constructing of single sentences to express separate judgments is not composition in the sense in which we use the word in school. It is called, rather, sentence making, and is an important acquisition for facility in composition.

The composition process is one in which personal initiative is the prime requisite. The impulse must be felt as the moving cause of the expression. Unless the pupil composes English oral or written under this impulse it is in no sense creative study. It may be study of the mechanism of the sentence, but it is a very mechanical study of that. If English has been studied, as above suggested, in the grades below, and a similar

less is continued in the fourth, fifth, and sixth grades, the child will have enough ideas pressing for utterance, upon any living subject, to furnish the matter for his exercise in composition writing or oral discourse.

Let it always be borne in mind that everything studied in school is a live thing. It is not dead stuff, nor dead results, a live process in the child's world and should be so regarded. Indeed everything in the world is a process and a process only; so the philosophers and scientists tell us. No true conception is possible if spirit is the creator of the world. There are mechanical processes, but he whose spiritual growth is arrested in these can be nothing more than a machine; and this is the lowest manifestation or utterance of the human spirit. Mechanism is one of the lowest rounds of the ladder by which we rise "From the lowly earth to the vaulted skies." But it is the end of the ladder.

IV

ENGLISH IN THE HIGHER GRAMMAR GRADES

The sentence is the object of study in the second distinct period of English study. This subject also has its sub-periods and its conscious periods. In the lower grades, the division of the sentence into subject and predicate, the functions of the different parts of speech and of phrases and clauses, the significations of the meanings of words by inflection, capitals, punctuation, and paragraphing, can all be taught in an incidental way, while the major emphasis is placed upon the mean-

The study of the separate functions of the words is often useful in mastering the thought expressed. But this is really what is meant by the study of English grammar. It is really building an approach to it. In Latin or German in which inflection determines the relations of words, the knowledge of these is the main purpose of grammar study. But English is almost a grammarless tongue, from this point of view. Its grammar is studied for another and different reason

and should not be attempted earlier than the seventh grade in the best schools.

THE SENTENCE

The sentence is found in every developed language. It has the same essential characteristics in all. It is the verbal expression of a judgment, or thought.

Every judgment involves a *source*, a *separation*, and a *return*. The source is the *subject*; from this the *object* or predicate is separated; and then it *returns* to, or is identified with, the subject. In the conscious act of thinking *I*, the subject, project my *predicate*, the *object*, and then affirm it to be my own by means of the *copula*, as: *I-am-thinking of this matter*. This is the type of all thought. It is by this process that each one creates for himself what he knows. Indeed, is it not by this process that the Absolute Ego has created the Universe, so far as man can fathom that process? The Absolute Source projects nature and man as object which returns to the primal source through man's spiritual identification of himself with the Father by feeling, thinking, and willing what He thinks, feels, and wills—becoming perfect as he is perfect.

This trinity in the judgment reproduces itself in all of the intellectual creations of man. Every ideal of art, or of literature, or of government has *source*, *alienation* and *return* as the constituent elements of its movement, when we study it deeply enough to discover them.

Since the judgment is the unit of human thought, all human knowledge *must* partake of the nature of the judgment. We can conceive of absolute thought only as the human judgment writ large. Man cannot escape this formula in his intellectual processes nor in his products. Whatever he knows he must thus create. His ultimate goal seems to be to identify his thought and life with that of the Absolute.

This has its place in this discussion for the reason that every serious-minded man's view of the world determines in a large way every purposeful act of his conscious life. The serious-

minded teacher of English has great need of a deep and rational view of man in his relations to the world, for "as the teacher thinketh, so is he, and so is his influence upon the school." This may be and for the most part ought to be a silent influence. Its effectiveness is manifested in the view of life the child has unconsciously acquired.

The process by which judgments are made has been shown above. The sentence is the judgment formed in words. The growth of the sentence in the evolution of the race has kept pace with the growth of the judgment. Clear judgments call for clear statements. The signs of meanings become as complex as the meanings themselves.

The essential parts of a complete sentence are three, corresponding to the three-fold movement in the formation of the judgment, viz.: the subject, the predicate, and the copula. Every judgment has its source in the thinker. "I think," or "see," or "hear," or "believe," etc., is the fundamental proposition of every judgment I form. To express modifications of the returning predicate, calls for words in the sentence used as nouns or pronouns, pure and attributive verbs, adjectives, adverbs, conjunctions, and prepositions. There are six classes of ideas used in the construction of judgments, and they have their corresponding parts of speech in the sentence. More complex thoughts call for phrases and clauses to express some of the more complex ideas or modifications of ideas which cannot be expressed by single words. The study of the relations of the ideas in the judgment, and of the mutual relations and forms of the words necessary to express them is Grammar in the sense in which the subject is here discussed.

The pupil has already learned many of the functions of words, in his efforts to interpret what he reads and in his practice in expressing his own thoughts with clearness and precision. But he is now making a systematic study of the sentence that he may discover the reasons for the rules, as well as the rules themselves, that must be observed in the use of the English

tongue. Prof. Earle says, "The chief instrument of Grammar and the key to grammatical analysis is the doctrine of the Parts of Speech." A doctrine so important ought to receive more than a passing notice even in so brief an outline as this is required to be.

The doctrine of the parts of speech is based upon the function of ideas in forming a judgment. Those ideas of which some attribute may be affirmed, are expressed by a class of words called *nouns* or *pronouns*. Attributes of these objects are expressed by *adjectives*; attributes of these attributes by *adverbs*. Ideas that assert attributes of objects, the return activity, are expressed by *verbs*. The mutual connection of ideas with other ideas is shown by the *preposition*, and that of judgments with judgments by the *conjunction*. Upon these evident meanings and their relations in the judgment, all the grammatical relations of words in the sentence are based. Groups of words—phrases and clauses—perform the office of some of these parts of speech. Often a single word has two or more uses in the sentence, and, too, words originally limited to one use often perform other functions in the sentence. With the growth of the language, many abbreviations and idiomatic phrases have arisen in expressing judgments, but no judgment ever contains other than the six distinct classes of ideas numerated above. The recognition of this fact and knowledge of the history of the philological changes that have grown up will greatly simplify many of the grammatical problems that arise in the study of sentence construction.

Of the practical value of this analytic study of sentences as an aid to accurate and rapid interpretation of the thought on the printed page, and also to correct speaking and writing by the student, something will be said later. It seems fitting to speak here of the educative value of this study in another of its aspects.

All the other activities of the elementary school direct the thought of the learner outward. The things the child studies

are objective—other than himself. He looks upon them as upon a panorama.

This is as it should be. To know one's self is the ultimate goal of man's endeavor, but his first steps toward its attainment are through an intimate acquaintance with the external world. There is a subjective world, however, of infinitely greater importance to him. To enter it too early in life is as disastrous as it is never to enter it. Only a small per cent of those who enter the elementary schools go beyond these. I do not see how grammar can be anything more than a memoriter exercise if the learner does not study the workings of his own mind in learning it. If he takes up a systematic study of technical grammar in the eighth year after the incidental analysis of the sentence necessary to satisfactory work in English in the grades below, an opportunity is afforded to introduce him to a study of the workings of his own mind, which is, at the same time, an introduction to the study of psychology, logic, ethics, and philosophy. It is impossible for one to arrive, in after life, at a rational and restful view of life except by a study of the subjective world which he enters or may enter through the door of grammar. It will give him the key to the solution of many problems that become matters of great concern later, should he care to solve them for himself. He must solve them for himself if they are solved.

The importance of the study of the sentence in the various forms of discourse, in order that one may accurately interpret its meaning and so be enabled to put his own meaning into the best form, is too evident to need elucidation.

That one can learn to speak and write good English by imitation, when his life is spent in an environment in which only such language is used, is evident, but no one ever becomes a master of his mother tongue by such a process. The rule of thumb is his only guide.

Much needs to be done to improve the pedagogical procedure which now prevails in teaching the grammar of our mother tongue.

Young people generally begin this study before they have gained facility in reading for the sense, or in the ready and accurate use of language in conversation, or in the easy expression of their thought in written composition. English is the study of major importance during the first six years of school life. During this period the child should not only acquire reasonable skill in the use of the sentence, in both the graphic and oral forms, but through his readings and conversations with his teachers, ideals of life and aspiration to achieve something worth while should become awakened and, as far as may be, established. This is a strong defense for a great deal of well selected and properly graded reading-matter in these grades. It should be borne in mind that good English is the utterance of the lives of the best people at their best moments, and that the school must, for the time, live their lives over after them.

Closely related to this ethical function of English study is the music, the manual training, and the graphic arts—what the uninformed call the fads of the elementary school. All the subjects of study become mere fads when we fail to articulate them closely and wisely with the inner and outer life of the learner. It is because of this lack of adequate articulation that the children often feel so little abiding interest in the work of the school.

The elementary study of these higher processes of life, which the schools of the former generation ignored, is one of the most valuable contributions made by modern education to the school life of the children. When the teachers have learned how to use them, their value will become manifest to all whose opinion counts.

We will now assume that elementary study of English, as an activity in the lives of the children, has been pursued for six or seven years, and that the functions of words in expressing judgments have been an incidental study to the extent that the knowledge could be employed in helping the child to master the printed page.

The transition from the elementary study to that of gram-

mar is more marked than is any other change in the entire course of English instruction. The movement to this point has been distinctively synthetic. The child has been advancing toward the construction of larger wholes from step to step, gathering ideas and creating ideals which called for more complicated symbols for their expression. He is now to enter upon an analytic study of judgments and their symbols.

This transition is difficult for the child to make because it calls for introspection, a radically different act from observation. All his life he has known his objects of thought as objective, whether they were objects of sense or of the imagination. Now he must analyze this act of knowing. One can conceive of a course of instruction in the elementary stage so artistically planned and executed that children in the sixth or seventh grade would be able to enter upon this introspective study understandingly. Whether profitably or not, I do not know, for I do not remember my own state of mind at that age. I have seen one class in the sixth grade that seemed quite as able as any eighth grade I ever knew to pursue this study. The class had had the best of instruction from the beginning of their school experience and the grammar teacher was an artist.

It is safe to affirm that children in general are set to work on grammar before the grammar-sense has sufficiently developed. But one seems justified in saying, also, that it is not so often the child's inability to understand as it is the teacher's failure to see what he needs to understand, that makes grammar so forbidding a subject of study. A prevalent pedagogical error in the beginning of this analytic study of English is to proceed at once with the study of the statements in the book. Textbooks in grammar in the hands of capable teachers are generally more valuable for the illustrative exercises they contain, than for the author's elaboration of his doctrine.

In the first stages of this introspective study the conversational method seems altogether the best way to open up the

subject. The pupil will not be able to study the movements of his own mind by fixing his attention upon the products of some other mind. He must be led to see himself making judgments and to discover the steps in the process. This requires a series of lessons continued long enough to discover not only the general process of separation and return—the completed judgment—but the function of the different classes of ideas in constructing the object (predicate) which is to be identified in some way with the ego that is the source of the entire movement. When this movement of the self in forming the judgment is recognized, the construction of the sentence symbol that is its verbal expression is an easy matter, and the functions of the separate words, inflections, phrases, and clauses in the sentence are no more difficult. Time taken to lay the foundation is time saved in building the grammatical structure.

Another pedagogical error of this stage of English teaching is the conviction which prevails generally that an exhaustive analysis of every sentence studied should be made from the start. It is better to articulate the large bones before giving much attention to the small ones. When the learner can see at a glance what words are needed to express the subject of that which he is studying, and can point out those that set forth its predicate, the mutual relations of words and ideas in subject and in predicate are not far to seek. But all these things will be clear only when the judgment expressed is clear.

When the subject is thus opened, a good textbook in the hands of the pupils for the study of such details and such illustrative sentences as the teacher may direct, is the only valuable use of such a book. The learners are now studying the thing itself—the sentence—and are not trying to learn what some one else has said about it, whose sayings they do not understand.

This seems to the writer a truly scientific method of studying the English sentence.

The practice of devoting two or three years to the study of English grammar is another prevalent pedagogical error. Such a study of the sentence, as has been suggested, for a single year, either in the eighth grade or in the first year of the high school, will give better results. The power to analyze the sentence at a glance is easily acquired when the learner's mind is prepared for the study; and the laws of punctuation, spelling, inflection, and syntactical construction, not already acquired in the grades below and which are needful for practical use and future study, can be acquired in the short period suggested, provided the pupil is interested in acquiring them. It is not easy, if it is not impossible, to teach a child anything he does not care to learn.

During this period of sentence study, the work done in the reading of literature should be, in part, a rapid thought analysis of the matter read with a view of noting the mutual relations of the ideas expressed. The purpose of this is to give facility in mastering the thought of the writer as one reads. This is easy enough in short, concise statements, but not so easy in long, complicated sentences. Many people in these days cannot read Macaulay and some other great writers of a former generation, because they get lost on the journey from the beginning of one of their sentences to the end of it.

This study of the sentence is introductory to that analytic study of discourse which is pursued in the English of the high school.

READING

The boy and girl period of growth, as distinguished from the previous period of infancy on the one hand—extending to about the tenth year—and the beginning of the adolescent period on the other, includes what, until recently, were known as intermediate and grammar grades. The marked characteristics of this period in the child's evolution have been already noted, and in some measure accounted for by the theory of evolution as the creative process of nature and man. What

should be the general purpose of the training in these grades has, also, been tentatively suggested.

This period is the most inspiring one to the teacher who appreciates the attitude of the child toward life, and who sees the possibilities of directing these superabundant energies in the formation of ideals of manly character, and in the awakening of aspirations to achieve them. There is not less but more impulse to attain at this stage than at any former period. There is an evolution of strong desires, for a different sort of attainment. They seek to utter themselves in physical achievements. Their commanding ambition is power. This is the bottom reason for manual training and athletic sports. Athletic contests which are carried on in the spirit of justice and with a knightly regard for what is honorable, are a means of grace to the young. The wrong in our college athletics today lies at the door of the faculties of these colleges and universities. They do not sufficiently insist that those who disregard justice and are careless of their honor shall take no part in them. They may be rough sport, and occasionally a bone may be broken, but that is of little moment if they teach the boys restraint under strong provocation, and to hold to a high standard of square dealing.

This is a period when the English must help, and it can help mightily. Indeed all along the primary course the ideal school has been preparing the spirit of the child for this transition. It has there emphasized not only the amenities of life, and used the Sermon on the Mount as its guiding principle in selecting the stories and the readings and conversations, but it has not forgotten the sterner demands of justice which return his deed upon the doer to his own undoing at times. Some mourn that such retributive stories as Little Red Ridinghood, or Jack the Giant Killer and the like, shall be used in infant schools. The children delight in them because "it served him right." They see it, in their infantile way, as a square deal. The Great Spirit of the universe has so ordered things that in the process of evolution the deed returns upon the doer,

either from without or from within. Let the little child know something of this under the educative direction and in the atmosphere of love of a wise teacher.

I have no theory of procedure to suggest for teachers who have neither wisdom nor love. I cannot see how such can perform any service worth while in the school-room, either for the children or for mankind. Their opportunity for service will be found in some other field.

The reading done in this period should be adapted to the dominant interest of the children. The field includes history and literature. Concerning the character of the matter and the method of its presentation, I shall venture a few suggestions.

An *exhaustive* study of the aims and deeds of a people, whether our own or any other, would be unprofitable if not impossible by children below the high school. A *thorough* study of an outline in which the epoch making events are associated with the lives of great men of commanding influence in shaping these events, it is possible and profitable to make.

But whether it shall be made or not will depend upon the method pursued by the teacher, and upon his own mastery of the history and of the outline he follows. He is not to leave the children to dig it out for themselves. The history of any event or series of events is to grow in the minds of the scholars under the lead of the teacher where they all work together. As the history grows, material is accumulated which can be used to stimulate the prophetic instinct to conjecture what must follow. The teacher's ability to paint the panorama will be increased by the fullness of his own knowledge, and his skill in selecting the colors. By this method of oral and textbook study in class, the teacher learns the mental attitude of each child toward the matter in hand, and can better select the things for his study preparatory to the next lesson hour. In this way a bird's-eye view of the history of England from the invasion of Caesar can be gained in a single semester, and something of the stirring speeches of the great statesman can be committed

to memory and recited in appropriate places in the course of the study. Sections of this study would serve as subjects for practice in narrative composition and in this way the history and the English study are inseparably united. Another semester spent upon American colonial history in a similar way with constant reference to the concurrent events in England, binds the two into a connected whole, and leads the children to live over again the thousand years of their ancestors and to feel the price that has been paid for our opportunities.

This is the time for beginning the cultivation of the patriotic emotions. Love of country is an ever present motive with every people. The children are most readily inspired by the patriotic deeds of their own ancestors in the forum and upon the field of battle. The skillful teacher can lead them to live over these deeds with these ancestors in imagination, becoming not only an eye-witness, but a participant in the events that stirred the souls of the great. At these supreme moments the children should recite from the speeches delivered in the forum or reproduce vivid descriptions of scenes upon the battlefield, such as Morley's of the battle of Naseby.

Turn the impulse of the boys to do real deeds of physical prowess into doing imaginary deeds of heroism with the heroes of the world, inspired by their motives.

Matter for developing the literary taste and for advancing the child's ideals of life, must be chosen with reference to the stage of soul growth of the child. Unfortunately for the highest success, the children in the same class have not all attained the same rank in psychic power. What is said here has reference to classes in the seventh and eighth years as the writer knows them.

If we call all worthy discourse literature, we find it necessary to distinguish between the literature of knowledge and the literature of power. There is no easily defined line of cleavage between them, but in one the commanding emphasis is given to knowledge—information—and in the other, to its power to move the soul to aspire. Literature for entertainment

merely, may perform its function admirably and has its value, but that value is small when viewed in the light of eternity. But it is not to be discarded.

It seems to me that an adequate view of the teaching of English must see that it is for the upbuilding of character, and that character is one's *ideals* and *aspiration* for the good and beautiful; it is his *knowledge* of what is true in the world of nature and of man, and his *will* to do that which is worth while.

How to make the best use of the literature of power in the elementary schools has been the theme of many writers. My purpose is not to repeat what has been so well said, but merely to call attention to the fact that some of this literature is especially adapted to the interests and needs of the scholars of these two or three higher grammar grades. This is especially true of Scott's *The Lay of the Last Minstrel*, *Marmion*, *The Lady of the Lake*, *Rokeby*, *Ivanhoe*, and *The Talisman*, which can be made especially attractive to boys; and it seems to me that the boys of these grades will continue to be the object of chief concern to the teacher for generations to come. Many who have the greatest native strength leave the schools for active life from these grades.

Their ideals of life are not high and the impulse to get on in the business struggle is a reproduction of the struggle of man in his savage state to survive. Their impulse is to get on by a similar process:—by cunning and by power. The present sorrowful state of honor and integrity among those of high rank in the business world, and the worse than robber greed with which they have betrayed every trust, are a re-enactment of the robber stage of the evolution of the race; more despicable than that, in so far as these modern captains of finance and industry are more intelligent than were our savage forbears. This dismal failure of their lives would not have come but for failure in their education to establish ideals and aspiration for a worthier life than is the gratification of the thirst for power which ill-gotten gains can give. Certainly

English can be so taught in this period of boyhood that chivalry and knightly honor will become more attractive than sordid greed; Brutus a higher type of manhood than Shylock. I may not be pardoned for expressing the conviction that the boy at this age should be taught English by a manly man who can put himself in the boy's place. Indeed all the subjects which boys learn in school, which make most for manly character,—among which English stands in the forefront—should be taught by capable men. The school must have a virile atmosphere if it shall produce a manly product. Emerson said that he cared not so much what his boy studied as who was his teacher.

Power is our main reliance in teaching, but skill in the use of this power is only second in importance. One must know how the child learns if he would have skill in teaching him.

The child has the art instinct, but he is not at home in the art world. His art instinct has been strengthened in his English course below the sixth grade. It needs special culture during this period of boyhood. Art enters the soul as feeling. The greater the knowledge and culture, the better able is one to appreciate the beautiful, but art is felt rather than thought.

How can the artistic feeling be aroused in studying literature?

Certainly not by setting the novice to the task of digging it from the printed page without assistance.

Not until the learner is familiar with the author's style and can read at sight the meaning in the words, is he free to catch the spirit or feel the emotion of the author from the printed page alone.

Whether the author be Longfellow, or Arnold, or Tennyson, or Lowell, or Scott, it seems to me that the teacher must first give the student an introduction that shall awaken his dormant appreciation of what the reading portrays.

This requires that the teacher be a good reader; one whose voice, enunciation, countenance, gesture, shall fitly express the sentiment.

Suppose that the study be *Marmion* or *The Lady of the Lake*. Much of the first reading of the poem will be done by the teacher in class, after giving it its proper setting in the history and spirit of the time it portrays. This is done, of course, with explanations and conversations upon such points as may need to be cleared up, and with the class following the reading of the teacher in their texts. After reading the first canto in this way, the class could spend a period or two in reproducing the scenes in their own language, and in reading some of the most striking passages, whether of description or narration—in both of which Scott is a master. Portions of each canto can be assigned for home reading at the teacher's discretion and reviewed in class, preparatory to the next readings.

When the entire poem has been surveyed in this way, a basis is established for its more exhaustive study, provided the class is able to pursue this further study with profit.

But, whatever the grade, whether primary, grammar, or high-school, this general survey of the literary whole with the teacher in class should be first made.

I have found it to be the rule—to which there are exceptions—in schools including the high schools, that the class nearing the close of their study of Julius Caesar, for example, have not yet read the play through in class, and many of the scholars had not had sufficient interest to do it in their home reading. They look upon it as a grind during the class period.

To what extent the more exhaustive study of a literary selection shall be made will depend upon the ability of the class. Below the high school it should not extend very far. The chief purpose—but a silent one—in the grades is to establish ideals and aspirations for worthy attainment by encouraging a feeling of hero worship of a high order. This is certainly worth while when we consider that it is the strong, assertive, power-loving boys of our schools who are to become the leaders in society, in finance, in industries, in politics, and the like, and that they are to set up the standards and set the pace in such pursuits. The boys should leave the schools with

a strong detestation of lying and stealing under any name, and with a sense of honor and love of country, which forbids them to use their power to the injury of their fellow men. Nothing can do more to secure this result than the adequate teaching of English in the schools: English with the large meaning that is emphasized in these pages.

In closing these suggestions on one phase of the subject for discussion, it may be well to remind the Society that this paper is submitted not as a hand-book for teachers, nor as a finished and carefully articulated outline of such a book, but rather as a series of suggestions upon different phases of the work in English. It is hoped that the discussion will contribute so much to the solution of this important problem that a publication, more complete, for the furtherance of the ends suggested will be justified. (This much by way of explanation for evident and intentional omissions of important matter. The author would add that this entire study has been written at irregular intervals in a busy life, without as much attention to the mutual relations of parts as a more formal discourse would demand.)

ENGLISH IN THE HIGH SCHOOL

V

INTRODUCTORY SUGGESTIONS

There seem to be four quite distinct stages, or periods of transition, in the development of human life:—infancy, boyhood, adolescence, and manhood. In infancy there is no marked difference in the psychic growth of the two sexes. In the period of boyhood, the boy's instincts, impulses, and interests differ materially from those of girls, as has been already suggested. The transitions from girlhood to womanhood is much more rapid, and the changes in the views of life are much more marked than are the corresponding changes in boys.

The psychic difference between the typical boy and the man

is of slower growth than is the difference between the typical girl and the woman. The greater rapidity and violence of this change in girls makes of it a storm and stress period of greater intensity for them than is experienced by boys. For both, it is a new birth, where again, as from infancy, the angels of darkness are warring against the angels of light. It has been called the period of conversion, of self-dedication to a cause, good or bad. Shall the governing instinct in the selection of the aim of life be worthy or less worthy? Shall it be power or virtue? Material prosperity or spiritual riches? A life of service or of domination?

It is during this period that dominant ideals of life become established. It is a time, too, when the soul awakes to a fuller and deeper sense of what is really worth while, though it sees it as "through a glass, darkly."

It is a time, therefore, for wary walking by the teacher, and especially by the teacher of English. Not all the other high school studies together give so many opportunities for determining the future character of the student as does the English.

It seems to me that the teacher should come to this work with all that is known of this critical period of adolescence. And this, too, demands wary walking if one would discover the truth in the literature now appearing and to appear more abundantly in the immediate future.

The spiritual significance of this period has been but recently apprehended. It is a later phase of the spiritual evolution of the race of which the Christian church has been dimly conscious since the coming in of Puritanism. It has been known in the church as the period of conversion, and is to all persons a transition period of varying degrees of intensity. Shall the soul's advance to higher things or be arrested by the allurements of pleasure or of sordid power? The emotions are the dominant factor in giving direction to this new life, as they were to the former life. Dr. Hall calls it the "Golden Age," and such it is in its possibilities.

The teacher must himself be a master of English if he would attain the greatest usefulness. Neither here nor elsewhere can one teach that which he does not know and cannot do. His proficiency will be the high-water mark of his efficiency. But without an inspiring and well articulated view of life and of the school's relation to it, his learning will be of little avail in securing results that are worth while. Though he have all knowledge, it profiteth the student nothing. To love, to know, and to do, complete the cycle of the soul's activity. What he loves, knows, and does, determines and constitutes his life. An unarticulated arc of this cycle is worth nothing without the other arcs of the life process. Knowledge without the loving deed, or the deed not directed by knowledge and love, or love without the intelligent act, is each by itself, without real value to the individual, and often works sore distress to others.

English, to the high school student, should result in psychic power in solving the problems of life, and, also, in practical ability to enter upon some of the literary vocations: the up-building of the self and service to the community. It does not work mightily for the accumulation of wealth and is apt to be little regarded because of its small commercial value. But, as has been urged in a preceding chapter, it behooves the high school especially, and the highest elementary grade in some degree, to open the way to the student to a knowledge of himself and to a method of self discipline that has no direct relation to money-getting, nor to any other eminence either political or social. I have lived among and mingled with the informed and the less informed classes of people in the middle states for nearly three score and ten years, and not ten per cent of them place a higher estimate upon education than its commercial value. What cannot make good by this standard they would expunge from the curriculum. This is the repeated demand of the public press and in these later years the educational forum seldom advocates an educational process because it is good for the soul.

The teaching of English has its commercial side, but so long as commercialism is the direct aim of all the other than the linguistic studies, the high school may well insist that the English shall make its commanding purpose the laying of the foundations for a higher type of character than the present leaders of the financial, industrial, political, and social groups represent.

A school boy was recently describing the methods of an ice-dealer. The wagon would be loaded with one thousand pounds of ice, and the driver who would sell eleven hundred pounds from this thousand would be rewarded. The boy gave this as an example of business thrift, not of reprehensible methods. He thought everybody did business that way. He admitted that it was not fair, but no business is; business is for making money, and what one man gains the other must lose.

In the same city, whose moral status is of the highest in the state, prizes were offered for the three best Christmas stories written by high-school students. The daily press offered the prizes and among the stories which the editor selected for publication, was one of a poor boy who wished to give his mother a Christmas present. According to the story, a merchant had published in his show-window a fifty-dollar prize for the best guess of the use of a piece of mechanism there displayed, the purpose of which was well concealed. The boy had surreptitiously discovered its use while in the hands of the maker. He sent in his guess and received the prize which he promptly gave to his poor mother. The judges did not consider his story one of the best four, for it had little literary merit. But neither judges nor publisher considered its moral obliquity as worthy of notice. The writer of the story was wholly unconscious of any such criticism upon his work. It was business. When such things are done in the green tree what will be done in the dry?

On the relation of college requirements to high-school English there is need of more reflection. All agree that the English study which best promotes the life of the student during the high-school period is the best preparation he can make for college. There is no uniformity in the attainment in English of those who enter the public high school in different parts of the country. Some of the high schools in large cities are exceptions to this statement.

The range of the English for culture, or soul growth, must be a wide one. There can be more uniformity, perhaps, in the study of the form aspects of the subject. Worthy literary selections can be made for the more exhaustive study by the class which are easily within the ability of every member. These should be fairly mastered as standards for estimating future work. But the major part of the reading should offer a wide range when we consider the whole class as the unit. The range of each student will be greater or less, depending upon his ability. Each should read literature in the field of his interests, and the teacher should help him to select good literature in these respective fields. The value of this reading will depend upon the fullness of the teacher's knowledge of it, upon his interest in the individual student, upon his skill in suggesting what to look for in each book, and upon the character of the tests applied to discover the contribution the reading has made to the life of the reader.

In the growth of the human soul there is from the beginning a consciousness of likeness and of difference—of synthesis and of analysis—of unity and of separation. The building-up process is the leading movement in the period of infancy and childhood. This is the period of the accumulation of ideas. The product is an aggregation rather than a system.

In boyhood the analytic instinct grows toward leadership, resulting in the separation of ideas into classes—the inductive period of growth and of the creation of general notions. In the high school, there is, or may be, a rapid approach toward rational synthesis in which the logical or causative relations

of things come to the front. In all the three periods all of these activities are involved but the stages may be fairly well distinguished as those of *aggregation, induction, and deduction*. In the inductive stage the instinct to synthesize into classes is strong.

These two instincts, synthesis and analysis, appear in literature as the spirit that affirms—creates, and the spirit that denies—destroys. In nature it is seen as generation and degeneration.

Mephistopheles defines himself in Goethe's *Faust* as "the spirit that denies."

It will be noted that the creative, synthesizing spirit is the commanding instinct of the soul, when the development is not arrested. The aspiration of the human soul is toward unity with the universal soul, but that aspiration is yet weak and the school has undertaken to strengthen it. It is this conviction that inspires the teacher with a zeal beyond most other public servants. He may not be conscious of the cause of his devotion. He calls it his demon, perhaps, but it seems to me to be inspiration.

In the work of the grades the children have made no conscious distinction between the literature of power and that of knowledge. I apprehend that the artist will not admit that the latter is literature. A friend prominent in the educational counsels of the nation, was deprecating, before an audience of superintendents, the practice of attempting to teach the infants literature; and when I asked what he meant by literature he promptly replied, "That which neither you nor I ever write." He had evidently adopted the artist's definition.

But when the little child is stirred in his emotional and moral nature to a corresponding degree and after the manner in which literature stirs the artist, by the stories told by the teacher or read from the printed page, I think one may call that "literature of power"—at least for educational purposes. It certainly has the content of such literature, and it is the content more than the form that does most for character.

The high school undertakes to make manifest to the student the importance of an artistic form to adequately express a literary content. The high school cannot make artists but it can make it clear to the students what they must know to become such. The high school ought to set its face hard against the pernicious doctrine that all art, including literature, has for its commanding purpose the gratification of the artistic feelings—"art for art's sake." Certainly the only real demand of public education is for artistic expression of a true and noble sentiment. The vulgar dance-girl of the French art is not educative however entrancing may be the coloring. No more are corresponding creations of the poet. Whatever is fitted for use in the schools is more valuable for its meaning than for its style of utterance.

The content of true art must be the content of spiritual life—love, moral will, and thought.

It has become an established conviction of the writer that the elementary and high schools ought to do more for the boys' English than they are doing. Beyond the age of ten or eleven years, the mixed schools are better adapted to the nature and needs of girls than of boys. Some one has said, in substance, that the boys are sent to girls' schools. Of the rapidly increasing difference between the impulses, desires, and ambitions of boys and of girls beyond the age of ten, something has already been said in this discussion. This difference is universally recognized by teachers and parents of experience, who are sensitive to such matters. It seems to point back to some former period in the boyhood of the race, when the men, like the savage Indian tribes of two generations ago, must needs train themselves for war, while the women discharged the duties of domestic life. It may be that this inheritance will die out in some future period in the growth of man. We even now have feminine boys and masculine girls; but the boys who will do the men's work in the world for generations to come are, in spirit, the masculine boys who give sentimental mothers great

anxiety because they are not like their gentle sisters. This difference in the psychic impulses, whatever may have been the original cause of it, calls for recognition from the schools. America is making a mistake in converting her grammar schools into girls' schools, and her high schools into female seminaries to which boys are admitted. Boys from the age of ten or eleven must have for their dominant influence manly men, if vulgar greed for money-power or for political domination shall not entirely supplant moral power in the estimation of the mass of mankind, and of Americans in particular. We are in that stage of our evolution when a few strong, dominating spirits set the pace for the mass who always follow.

These boys need a course of instruction, especially in English and in history, taught by men.

How to make a re-adjustment of the teaching force to meet this need is a matter of detail. But the need seems to me imperative that these boys shall pursue those studies that afford the best opportunities for establishing ideals of noble living and for awakening aspirations and moral will to achieve them—such as English and history—under the lead of a man able to command their respect and to arouse their enthusiasm. Women can teach mathematics and science and art to boys as well as equally capable men can do it. But women are not competent teachers of boys in all subjects, as men are not competent teachers of girls in all subjects. If we are to continue to have mixed schools provisions should be made for about an equal number of men and women teachers in the high schools and higher grammar grades, and some of the classes should consist of boys exclusively and some exclusively of girls.

It is not in the aim of this discussion to consider the method of procedure in teaching literature in the high school. This society is not interested in such matter further than its general bearing upon the purpose of English study. The adolescent period is one of intense but uncertain psychic activity. Much work can be done by the students, but the school relies upon different influences to secure it from those employed in the grades.

The boy can be driven by influences more external; the adolescent must be inspired. This is a time, it is said, of devotion to ideals and causes. The school must give steadiness to the enthusiasm and plant the standard of a worthy cause. What was pursued for ends more external by the boy must now be seen as an end in itself—truth for truth's sake; right because it is right; loving kindness without thought of reward. When this finds utterance in form most fitting, the beautiful has appeared.

It seems to me that the material used should not only be a rich contribution to the commanding aim of English study—the building of character—but it should be so selected that it will serve as a conscious introduction, under the guiding hand of the teacher, to the four fundamental forms of discourse.

To enter upon the investigation of what particular literature should be studied would carry us far afield from the aims of this discussion.

The study of English in the high school has for its commanding purpose:—

First—The building of character controlled by moral will.

Second—Leading the students to live over again to the extent of their ability *the feeling, the thought, and the purpose* of the best that has been said and done in the world.

Third—To so do this that the graduates will take pleasure in reading that which has permanent value, and will be able to learn to distinguish the counterfeit from the genuine.

Set them in the way of determining for themselves what are the great books in the world and why they are great. They will thus be prepared to enjoy in their hours of leisure the companionship of the great souls of earth when at their best. By these accumulations of years they lay up for themselves treasures that can be fully realized only in the green old age which will thus be assured and become an increasing joy. Old age is then the Terrestrial Paradise instead of the Inferno so often the experience of the aged.

To do this in any effective way the high school must begin where the grammar grades leave off. If what is essential to such a study has not been done in the elementary schools it must be done by the high school before it enters upon its own legitimate work. This seems a truism, but the English work in many a high school comes to naught by disregarding this injunction.

The evil effect of undertaking to do what the learners are not prepared to understand and appreciate is manifest in the total indifference of a large majority of young men and women graduates to any reading other than the poor sensational novels that crowd our public libraries. The writer has offered publicly and repeatedly to publish reports made to high school principals of the home readings of recent high school graduates of one and two years' standing, as a test of the influence of their English study upon their desire to read and their selection of books. He has been answered invariably by silence and a reproving countenance. The public libraries report novels galore of the weaker sort as the reading of these young people.

A marked change from the material used in the lower schools should grow in the high school *pari passu* with the rapidly changing spiritual nature of the students. The selection of this material must be determined not by its excellence as literature solely, nor because of its value in the study of the historic development of literature, nor on any grounds other than that it will best meet the present needs of the students. Those needs the teacher must be able to discover. The experience of others will help him in his search, but there are no hard and fast boundary lines for all schools and all teachers. What we are seeking is growth in character, and character—the character we are seeking to promote—is a complex of psychic activities in which there is love for what is “noble and of good report,” knowledge to direct in its pursuit, and will to persist in its attainment.

Principal Percival Chubb in his admirable book, *The Teach-*

ing of English, says of the high school in its relation to the higher institutions:

"The high school course in English must be framed to incidentally dovetail into the higher institutions of learning. Incidentally we say, because these institutions have no peculiar demands to make upon the high school, other than those which these schools should make on themselves,—namely, that the work they undertake to do shall be well done."

May I suggest that these are quite different grounds for our selection than are the entrance requirements of colleges and universities. These requirements are valuable for their suggestions, especially to the experienced teacher, but they should never be directive. How a principal of a high school can continue to follow blindly any directions of this sort which he knows are not applicable to his school, and yet sleep well of nights, is to me a mystery; any principal, I mean, who has not bowed the knee to the spirit of commercialism that is now rampant in society. Education must be viewed in the "light of eternity," not in the light of frenzied finance—that temporary craze of our unstable social order. If the commercial spirit shall stalk on at its present pace for more than the lifetime of the other fads, education itself will become a fad, and no need will then remain for serious consideration of its purpose and method. These will change with the seasons.

COMPOSITION.

In the Lower Grades.—Little has been said in these remarks, except incidentally, of Composition, the matter of greatest moment in teaching English. The psychic growth of the child is a compound of movements from without inward, and from within outward—from object to subject, and from subject to object. The one builds up knowledge and the other creates power. The ever recurring questions are, What knowledge is of most worth? and, To what ends shall power be directed? The answers which the teacher makes, either consciously or unconsciously in his teaching, must depend upon his view of the

world. Is he viewing his work in the light of eternity, or is he following the injunction, unconsciously it may be, "Let us eat, drink, and be merry, for tomorrow we die?"

But for whatever ultimate end English is taught, the successful teacher for that end must recognize that building up knowledge without creating the power to use it is of little worth. From the start, therefore, impression and expression are the twin activities in the process of growth. Expression has been too little regarded in the past. The new movement in teaching English has been stimulated by the new movement in human thought, and by the more rational view of the soul.

Composition is the expression-side of the learning of English. It is both oral and written—expression by the tongue, and by the longer circuit through the fingers. It is, or should be the expression of the self. The child's out-of-school life is at every point self-expression. The teacher is discovering that this is probably the reason why out-of-school life is often so much more interesting to the child.

The teacher, from the primary grade through the university, must be ever working for knowledge *and* power. Knowledge does not become power except through half-a-life-time of discipline. The old adage that "knowledge is power" was first formulated by a master. It is not true of the child. It requires constant watchfulness to keep these twin activities working in harmonious co-operation in the growing mind.

But composition is more than expression, it is the *ordered* expression of English. It begins with the construction of the single sentence, which is not composition in the school meaning of the word, and advances by uniting two or more sentences to express a larger whole. The union of two sentences for this purpose is the simplest form of discourse.

This expression of the self is so important an element in English training because of the demands it makes on the personal initiative of the learner. Exercises in English are composition, in the strict sense of the word, only so far as they call into action this initiative. There is much done as compo-

sition that is *imitation* merely. There is little if any of the personal initiative in it that promotes growth in English. It may be useful in learning the mechanics, but drill in the mechanism must not be confounded with the teaching of English.

Imitation, Memory, and Imagination, the commanding trinity of the child's inherited psychic endowments, are supremely active, and form the line of least resistance for expressing himself in English. The teacher and the other environment which she supplies, must be his inspiration. Talking is the mechanism to be used. The teacher is the environment, beyond all other, the most important. Her voice, her face, her manner and fitting language, and more, her spirit and enthusiasm and skill in putting things are the main reliance of the children. Of the need of these acquirements mention has already been made. It is under the skillful leadership of the teacher in these grades that the child must learn to talk in an orderly way and to use the best words for his ideas.

This oral movement is the commanding one in the first five or six grades; but there must be, at the same time, a growing power and skill in speaking through the fingers. The need of giving the child freedom to utter himself without restraint during the English class-period is apparent, if he shall not sink into discouragement.

The success and want of success, in the schools of the cities, in securing for the pupils a free expression of themselves in written composition in the third and fourth years of school, was clearly shown at the late exposition in St. Louis. In some cities whose reputation for good schools is more than local, there was no evidence of personal initiative in the children's writings. What one member of the class said, all members said. In other cities, notably in Cleveland, there was evidence that the children each gave utterance to his own thinking on the matter before the class. The penmanship and the spelling were not so near a good standard as they were in the more uniform compositions of other cities, but the children showed more power. We have yet to learn that excellence in ex-

pression grows step by step with forceful and connected thinking, and that both of these are matters of slow growth; as slow as the growth of the child. A young child who cannot talk well, cannot write well. He cannot write so well as he can talk, unless his training in writing has been abnormal. With age one may come to utter himself best through his fingers and lose the power to do it well through his tongue, but children should not be so trained.

In the Higher Grades.—In the lower grades prominence is given to oral composition. The importance of training in oral composition as the scholars advance in the grades does not decrease but increases, rather, to the end of the high-school course.

The written composition is of increasing importance from the beginning of the seventh year. In the last two years of the elementary schools the boys and girls should be driven hard on the mechanics of composition writing. They will by this time have enough in their lives and enough coming in from day to day to write about. But they need sharp training on the best sentence formation to express the meaning; on the best selection of words to express different shades of meaning; and in giving a free wing to the imagination under guiding reins that are felt but are not oppressive nor depressing. This is preparatory to that freedom of expression under the established laws of good English which it is the especial function of the high school to encourage and promote.

The commanding function of English in the high school—to quote Principal Chubb in his truly great book, *The Teaching of English*, is “to make of a student, first of all, a character, and only secondarily an intelligence and an aptitude.” The multitude of avenues from which character building come into a serious and skillful procedure in teaching composition, will become manifest to him who has an open mind and a seeing eye. But it is only by the efficient performance of the second function that the first can be realized.

The scheme of the high school seeks to promote a friendly acquaintance, at least, with discourse in its four forms of narration, description, exposition, and argument. In most high schools this work is distributed over the four years of the course in this order. The method of this distribution is important.

There are few discourses of any considerable length that do not use all these forms. The school should recognize this fact. The models studied and compositions written should be such as put major emphasis on the form selected for the period during which it is to be practiced, in order that its peculiarities may prominently appear, but it is an error to limit the compositions to one form during that period. The same caution applies to the study of every other form of English—such as poetry and prose; dramatic, epic, or lyric composition; etc.

This appears self-evident perhaps and unworthy of remark in this presence, but the habit of chopping our subjects of study into distinct sections has become so confirmed as to destroy the unity of the movement in very many schools. The leading process in school life as in all life is synthesis; and analysis is only valuable to reduce vague, chaotic synthesis to a synthesis that is organic—unity in variety; many in one.

The need of continued oral composition in these forms is not sufficiently recognized. To become a good talker is in school only secondary to having something in mind which it is worth while to say and say well. This can be acquired only by practice in talking under friendly and helpful criticism. This calls especially for the extemporaneous debate so prevalent in good academies fifty years ago. It calls for a great deal more of oral extemporaneous discourse than high schools in general require.

The thing the high school needs in its English work above all things is sincerity. In the lower grades, the children need to practice it in every grade. In the high school, they have grown to a proper esteem for their own views and conclusion in all other subjects than English. That may be because Eng-

lish is not so well taught in the lower grades as are the other branches. But if the student in the high school does not feel free to give utterance to his convictions, and does not use that freedom concerning all matters that come before the class for discussion, the value of the English study for character is small. Entire sincerity on the part of the teacher and the class is the one thing needful to satisfactory results. This has been assumed in every line of this study as the *sine qua non* of success in every grade. We are such blunderers in teaching that our pupils are not telling us how it seems to themselves but are guessing what the teacher wishes to have them say. From the start they should be persuaded to state their own attitude toward the matter. It is then that the teacher has the proper data for leading the learner to correct his view. But in the high school this attitude of teacher and student toward the matter in hand is imperative.

CONCLUSION

This study has been made not as a criticism on the prevailing work in the elementary and high school, but rather to suggest how the teacher's view of the world will determine his procedure in every stage of instruction. If he views the universe as a machine run by power applied from without, mechanism will prevail in the school. The school then becomes an appliance for moulding pliable material into citizens, or financiers, or mechanics, or any other artisans, according to some pattern. It moulds men as we mould pottery, and it hardens them by drill. Every child then comes out of school a case of more or less arrested development. His personal initiative is at the lowest and conventionalism rules his life.

If the teacher sees the world to be a live and growing organism, moving on toward the realization of the highest attributes of soul but which is dependent upon the influence of environment for its progress and attainments, he pursues a very different course. He then realizes that greatness of soul is

greatness in ideals, and in moral will, and in knowledge—the attributes which the instinct of the soul declares are the universal soul. He must then work for growth in character first of all, with the abiding faith that if the child is wisely guided to this attainment, whatever else is needed will be added unto him. This is but saying that many of us need to change the emphasis in the training of children—not to leave the preparation for the mechanism of life undone, but to give the major emphasis to the upbuilding of the soul. The best study of English will help mightily to this end.

GENERAL SUMMARY

I

1. The writer suggests a view of the world as a foundation upon which to build a course of instruction in English. He does this not to impose any view upon the reader, but because there is need of our having some theory of the universe consistent with the growth of the race, by which to guide our course in fitting the young to pursue a rational and inspiring theory and practice of life.

2. This theory regards the universe as a process composed of an infinite number of inter-related processes—not as a mechanism constructed by some power external to itself. The process by which the universe, so far as known, is constructed is evolution. The working principle of evolution is that changes come as the need of these changes becomes imperative.

3. The supreme result of the evolutionary process on this planet is self-consciousness. This is conceived to be "the efflorescence of the human plant" to date, and not "a wart raised by the sting of sin," nor "a fall or a process of purgation."*

Self-consciousness makes the creative activity of the soul possible, and is the condition of all knowledge. Man knows only that which his consciousness creates. The unit of this creative process is the judgment.

4. There is no dead thing in the universe. Everything is a phase or aspect of activity—appearing in Nature as Motion, and in Man as Consciousness.

5. The creative processes are cycles, corresponding to the cycle in self-consciousness called subject-object: The Absolute Cycle is (1) Ego, or source; (2) Nature, the object or predicate of the thought of the absolute: and (3) Man, the image of the absolute in that he is self-conscious and creative, and through his creative activity rises more and more into spiritual

*Hall's *Adolescence*. Vol. II, page 67.

identity with the Absolute Source, and so completes the cycle.

6. This view of the world makes Psychology enlarged to include the Universe the last system of thought for the race—the three systems in the evolution of man being: 1. Religion; 2. Philosophy; and 3. Psychology; which latter completes the cycle in the thought of the race, corresponding to the cycle in the judgment of the individual and to the cycle of the creation of the Universe.*

7. It is by the inflow of the soul of the world into the soul of the child through avenues which it is possible for the school to open, that his life becomes in a small measure, *one in love, knowledge, and moral will* with the soul of the universe. The school, directed by man, has been substituted for nature's laws of evolution in directing the growth of the child.

8. Of the evolution of the child as revealed by genetic psychology, it is not necessary to speak in this summary further than to call attention (1) to the inheritances which the child enters upon at birth—Feeling, Memory, Imitation, and Imagination—which are the commanding activities to be used in training the child in his early school life; (2) to the period between infancy and adolescence—especially in boys—when the instinct of power and domination is a leading factor; and (3) to the adolescent period or the period of new birth—a marked transition in education the importance of which has been but recently appreciated.

9. The *view of the world* here suggested, regards feeling as the primary and commanding stream in the psychic life of man, as religion makes love the supreme attribute of the Absolute Ego. As God is love, rather than intellect or will, so man is feeling with will and intellect as auxiliary activities for realizing his desires and aspirations. The contention is that there are as good grounds for this conception of soul as for that which regards either intellect or will as the supreme attribute, and that this view of the matter is the most inspiring for the

*See *Introduction to History of Ancient European Philosophy*—Denton J. Snyder; also Prolegomena to his recent book on Feeling.

teacher as well as more in accord with the history of the human race.

II

The succeeding sections of this study are so much of the nature of a summary of the entire procedure in teaching English, as to make a further abbreviation of it of little value. The design has been to commingle reasons for doing things with suggestions of the method of the doing, and to arrange these under the three general heads—(1) English in the Primary grades; (2) in the Grammar grades; and (3) in the High School.

Emphasis is given to the child's characteristic psychic activity involved in each, as:

Primary—Unconscious Synthesis and Analysis during the first six grades, with Analysis rising more and more into consciousness.

Grammar and first year High School—Analysis as the leading conscious activity with a growing consciousness of synthesis.

High School—Major emphasis on conscious synthesis with analysis auxiliary to this end.

The teacher of English should recognize these different attitudes of mind in these different periods.

The prevailing conscious attitude of the pupil in every grade must be a desire to attain an end. The primary function of the school is to supply the environment that will awaken the desire.

This report places the chief reliance in primary grades (to the seventh year) on oral speech by teacher and children, with a slowly increasing reliance upon the pupil's ability to work alone profitably at anything other than what is mechanical. He matures no faster psychically than he does physically.

The point of departure is from meaning, and the end is other meaning—not from form to other form, in everything but learning the mechanics of knowledge. Children can ap-

preciate and enjoy what they cannot express. The former stimulates the desire for the latter.

There are two movements in psychic growth: (1) *Impression*, from without inward which gives knowledge—and (2) *Expression*, from within outward which gives power. They grow *pari passu*.

Imagination works for power, imitation for knowledge. Knowledge does not become power until the artisan has become an artist.

Repression and *license* are another Scylla and Charybdis in the path of the teacher.

The story as an educative agency for power is neither used nor appreciated as it ought to be; especially during the years when the imagination, like the memory, is wildly active.

III-V

The theory and method of teaching English Grammar presented in this study is not popular. But neither is much else said in these pages.

The doctrine is, in brief, that the subject of study is the sentence, and that the sentence is the judgment expressed in words. The life of the sentence is the judgment. As is the judgment so is the sentence. The meaning is, therefore, the key to the formation of the sentence. To know how to construct a sentence one must know the relation of the ideas in the thought which the sentence is to embody. This is the doctrine in a nut-shell. Grammar does not differ from other studies in so far as what is embodied in the form is to determine the form in which it is embodied.

The Grammar chapter in this book outlines a simple procedure of studying the formation of the sentence along with the study of the judgment expressed by it.

The reasons given for such a study of the sentence are:

1. That the habit acquired of analyzing the sentence to discover the thought will give the person greater facility in interpreting at sight the printed page accurately and with facility.

2. This study of the self in the act of forming judgments introduces the learner to a subjective knowledge of himself in his process of thinking, which will serve as an elementary preparation for the study of other subjective branches of knowledge. It is the only study in the elementary school that helps one to know himself.

The demand for more strong men in the teaching force of the high school is imperative, not because men and women cannot teach the branches of knowledge equally well, but because in those studies which make most for character, strong men are the better teachers of boys. There may be no sex in mind, but there are certainly sex characteristics in human souls.

The opinion has come to prevail quite generally that the test of a good high school is the ability of the graduates to pass the entrance examinations to higher institutions. The average high school graduate is certainly prepared to enter upon the next step in his education, but the influence of prescribed college requirements upon teacher and students is not salutary. The work of the schools too often degenerates into a grind "to pass." The "commissioned—High school" badge may cease to be a mark of honor unless there can be a better articulated movement of the process of education from kindergarten to university. There is a historical reason for this want of articulation which needs to be studied.

A general survey of English in the schools both as to methods and results, reveals the need of radical improvement in our methods of teaching English composition. The importance of this is emphasized throughout this study. The difference between knowledge and power is the difference between accumulating the results of the thinking of others and creating.

We do not properly interpret the meaning of the maxim, "Knowledge is power." Power creates; knowledge imitates.

THE TEACHING OF ENGLISH IN THE PRIMARY GRADES OF THE CLEVELAND PUBLIC SCHOOLS *

EMMA C. DAVIS

Supervisor of Primary Grades, Cleveland, O.

I. GENERAL SURVEY

Our Theory in Brief.—To create or arrange for the child such conditions as shall enable him to react upon his environment and, transforming it, appropriate it; and under the inspiration and instruction of the teacher to pursue an advancing ideal. Self-expression is obviously one of the essential activities of this process; its modes are various. The most universal of these is Language—the subject to be discussed.

The Content or Subject-Matter.—The so-called "Language Work" includes therefore all the agencies of the school for the education of the child as formulated in the course of study.

The Presentation.—A constant effort is put forth to vitalize instruction by bringing it into direct relation to the actual experiences and inherent interests of the child—to couch it in terms of "the known."

It is our aim to make the child himself, wherever possible, the gatherer and recorder of his own experiences. (In observation work we insist upon individual not class work in observing and recording.) In such subjects as history, literature, etc., each individual teacher takes her own way to attain the

*[Among the teachers and schools that have got the highest order of results in the teaching of English are those of Cleveland, Ohio. And after all, of course, the results are what we want. It has seemed to me highly worth while to present here at least a glimpse of how the problem of English is conceived in the Cleveland system of education, what ideas guide, and what means are applied in bringing about such results as have been secured all the way from the first grade to the close of the high school. Through the courtesy of Miss Davis and Mr. Muckley I am able to let the Cleveland plan speak for itself. Even this fragmentary glimpse means much if it is read with care.—Editor.]

common aim which is to so present the matter that the pupil *assimilates* it and in giving it back *interprets* rather than *reproduces* what has been presented. An examination of the compositions and composing exercises shows this result to be the object of the work of every teacher in the primary grades, (it is of these only that I write) a result attained with a greater or less degree according to the skill of the teacher.

To Illustrate the Usual Mode of Procedure.—In the History work the story of our country is told as a narrative in successive chapters, so to speak, beginning with the simplest stories told of Columbus, the Indians, the Pilgrims and Washington and Lincoln in the first and second grades and continuing through to the present time in the third and fourth grades. This forms the basis of training in oral language. The narrative widens at points of importance and the event or personage around which the interest centers is given special study and becomes the subject of a composition. This subject-matter at this point is specially prepared by the teacher for the purpose and analyzed as to its sub-topics. It is given to the pupils in this wise: first the story is told through simply, following the analysis in the mind of the teacher, without much detail that the pupil may have a bird's-eye view of it as a whole. The teacher then goes back and amplifies each point and, in districts and grades where it is possible to do so, directs her pupils to read upon the subject.

(The analysis into sub-topics, referred to above, is never given as such to the pupils; we wish each to have the occasion and feel the necessity to do his own organization or thinking together the details into a unified whole which constitutes *his* view or interpretation.)

This presentation by the teacher is followed by a more or less free talk or discussion of the subject at one lesson-period, and it is written at a subsequent one. The only help given is the writing on the blackboard of words of which the pupils ask the spelling; this they are quite free to do.

Besides these longer compositions, there are frequent "Com-

posing Exercises." Less formal than the compositions and not requiring so much organization they serve many purposes for training in the use of written speech.

The Training in Form.—The Correction of Compositions: One set in three or four is thoroughly corrected in all errors of form and copied by the pupils. (The first draft of all compositions is kept for the Supervisor.) At least one set in three is corrected for spelling alone and in the following manner: The teacher counts the number of misspelled words in each and places that number at the head of the composition, keeping herself a list of the words most commonly misspelled in the set. At the next language period the teacher writes the words on the board and the pupils are set to finding which of these are their words. In the case of the very poor spellers, the teacher places the figure opposite the line in which the word or words occurs. In some schools the teacher skillfully manages to have pupils who have only one or two words to correct help those who have many to find their words, thereby engendering a spirit of mutual helpfulness and social good will. Meanwhile she herself is helping the very poorest ones over hard places. The object of this exercise is to make the pupil self-critical, that he may become self-conscious of his own liability to error. Moreover a pupil who has found and corrected his mistakes, learning to spell them through the exercise of his own powers, has not only gained in power but when he next uses these words will be much less likely to misspell them than if corrected by the teacher and written by him more or less automatically after a copy.

The reason of poor spelling in the pupils all over the country is not for lack of time and good hard work devoted to spelling. In our own fourth grade, for instance, the number of minutes per week given to spelling by our course of study is equal to the combined time given to history and civics, composition and constructive work, literature and nature study. But it is due to many causes, not the least of these is the spirit of the twentieth century that we have to combat, its lack of regard for

law and order and personal responsibility. Another and inevitable cause not reckoned is the composite nationality of our pupils, more than thirty-six per cent in Cleveland being of foreign parentage. Still another cause is the greater range and farther grasp of thought of the youth of today than in the "good old times."

We use every means and all our skill as preventive first, and second as corrective of this tendency to misspell. In the exercises outlined above, a sense of personal responsibility in the matter of spelling is one of its aims and results. (A greater attention paid to acquiring habits of correct pronunciation and clear enunciation will all help immeasurably in preventing errors in spelling.)

Mistakes in punctuation and capitalization are treated in the same manner as the spelling, one set in a group of three being given to this class of mistakes, while errors of structure are made the subject of special exercises which we call

Constructive Work.—In the primary grades only the simplest forms of punctuation and most commonly used cases of capitals are taught and these mainly by imitation and use. The simple sentence with its appropriate capitalization and punctuation together with quotation marks and the apostrophe in abbreviations, and the possessive, forms the basis of this work in the first three grades. In the fourth grade we introduce the use of the comma in its two simplest forms; its use in place of "and" in a series, and to set off a name in direct address. I also find children instinctively using or showing the need of the semi-colon by using the compound sentence form. Where the class is ready to take up this it is given.

We do not try to do more than introduce paragraphing in the fourth grade. It is first studied in the reading matter, the pupils becoming gradually aware of what constitutes a paragraph before they are asked to try paragraphing their own work.

The outline for "word study" in the Assignment is to be

studied by each teacher and such of the work as is possible and appropriate for her class selected and supplemented by other special work in these lines of which the language lessons, both oral and written, reveal the need.

In many districts most if not all of the work outlined in the course of study can be given, while in the foreign districts the teachers need to spend much of the time in building up a simple common "working vocabulary" of the English language.

In a circular now under preparation I am saying to the primary teachers :—

"If the teacher in each grade will follow the policy of adding to the vocabulary of the children each week two (at least) good, strong, useful *new* words (keeping a record of them before the class if possible), it would result in the accumulation of nearly one hundred specially good words each year which would constitute a valuable property at the end of the pupil's school life.

"To illustrate: take the word *nice* so commonly used and give 'agreeable' and 'pleasant'; or 'generous' and 'accommodating'; 'comfortable' and 'convenient' as some of the meanings which were meant to be conveyed by 'nice.'

"High school teachers complain that pupils have a paucity of adjectives. Let us take the hint and do more direct work in this particular, not, however, confining ourselves to adjectives and adverbs.

"The 'word study' on pages 74 and 75 of the Assignment gives practical hints for this kind of work in 'increase of vocabulary' and 'choice of words'. Let us pay more attention to this feature of the work from now on."

The correlations—the interaction of school agencies—are shown to some extent in the circulars used as guides for details of the work.

II. FOURTH GRADE READING—DIRECTIONS FOR TEACHERS

Ruskin says, "To use books rightly is to go to them for help; to be led by them into wider sight, purer conceptions than our own, and to receive from them the united sentence of the judges and councils of all time."

Let us keep steadfastly in view the one great purpose in the teaching of Reading, which is, that through the attainment of the art of reading, the knowledge and wisdom and joy of the ages may become his who will exercise it to that end, and co-ordinately that the learner may become conscious of all it means to be able to read—of all the avenues of knowledge and power thus opened up for him to the end that he be eager to avail himself of his inestimable privileges.

Correct oral delivery, though not an end in itself, is nevertheless an accomplishment which it is the special duty of the schools to give, and should be made a matter of special training. First, the manner of his oral delivery constitutes the proof of the reader's understanding or lack of understanding of the subject-matter; and second, it is the measure of his power and skill to convey as well as to glean the content of the text.

There are two phases in the teaching of reading; the Intensive Study and Extensive Reading. In the Intensive Reading we make an analytical study of selections of literary merit. Its purposes and results are many; the most important are—

1. Development of thinking power.
2. Formation of the habit of studying deeply into a subject.
3. Acquisition of taste for and appreciation of good literature.
4. Cultivation of the higher emotions.
5. A training in the acquisition of knowledge from the printed page.
6. Training in oral reading.

The steps to be taken in this Intensive Study are as follows: The first step should be the *Silent Study*. There are two kinds of study, the first, purely memoritor; the second, for the purposes of *assimilation*, is of the highest order and

requires that a vital connection be made between the experience of the child and the matter to be studied—the knowledge to be acquired. Therefore the silent study of the selection, which is for the purpose of the pupil's making the subject matter his own, should be preceded by a short talk which will explain "the setting" of the story—if it be a story, give a hint of the central interest and put the pupils in touch with it through some related experience or knowledge of their own; the result of this preliminary talk should be an eager interest to read the selection "to find out what it is all about." Sections I and IV in *Language Lessons* will be very helpful in this part of the work; but besides this the teacher will need to make a thorough and thoughtful study of each selection. The splendid work in the study of literature which is being done almost universally by the teachers this year, will I am sure, bear fruit in this preparative study they make of the selections in the readers and in the treatment of the poems.

The Silent Study accomplishes two things; it gives an acquaintance with the whole which illuminates and makes clearer the details of the part; and it gives the pupil the opportunity to gain through the exercise of his powers, what otherwise he is helped by the teacher to get, for he will exercise his ability "to sound out words" and will thus "make out" for himself most of the unfamiliar words the meaning of which he will gather through their association in the sentence or from sections III and IV in the "*Language Lessons*." It follows logically that if the pupil is set to the task of *getting the thought* from the printed page, he should have an opportunity of *giving it*. With a few exceptions most of the selections are in story form; therefore the second step will be—

Telling the Story—The value of this lies in the power of initiative it generates; to get a pupil to stand on his feet and tell independently and in his own phraseology what he has gathered by reading the printed page is a great educational achievement. Every story in the reader has two or more well defined parts, each of which is a unit in itself. Let from three

to five pupils each day "tell" the story—either a unit or the whole story.

The third step, usually in the same recitation period is the *Paragraph by Paragraph Study*. The pupils are set to studying each paragraph in turn with a view, first, to getting the words; for, though many of the unfamiliar words will have been mastered during the independent study, there will still remain for a number of pupils, especially in our foreign districts, words not included in the lists in the Reader, which they do not know and must have help in "making out." But we often find that *they do not realize that they do not know* words and they must have special training to become self-conscious of their lack; if you can accomplish this, it will be a great gain and of universal application. But the chief purpose of intensive study of the paragraph is to get the *full* meaning of the text. To do this effectively the thought must be analyzed and through this analysis we must make the pupil conscious of what we call the "phrase-unit" of thought and expression. (This term is used in the rhetorical and not the grammatical sense; it may be a phrase or an entire clause or a single word.) This analysis is to be done when the pupil first reads aloud the paragraph or sentence and, by his "breaking" the thought, shows us that he only partially grasps the meaning. Let us do this part of the work deliberately that the pupil may have time to absorb and make his own the "knowledge, wisdom, and joy" that is held for him in the printed page.

The thought is also often broken by the child's effort to "read with expression." Let our aim be to get *thoughtful* reading rather than "reading with expression." In the matter of *delivery*, lead the pupil to see that plain matter-of-fact statements and explanatory matter should be read in a natural "speaking" manner; reading in this case is simply telling. In conversation the conversational tones and inflections should be used but not *exaggerated*. In reading selections dealing with sentiment and the higher emotions, do not try to have the pupil read with *adult* inflection and emphasis from imitation or lead-

ing questions; rather stimulate *him* to *feel intensely* within his own range and then express what *he feels*.

Let us strive continually for correct pronunciation and pure and distinct enunciation. The latter should be made a special point in all the phonic work.

The last step will be the *Reading of the Selection as a Whole*. Here let the effort be to have the class read the story through with as little interruption as possible, so as to finish with the view of the whole and thus complete the cycle.

In the reading of poems let each one be, so to speak, a law unto itself. Direct all energies to the stimulation of the higher emotions through an understanding of and sympathy with the subject-matter, to the appreciation of the beauty of thought and expression, to feeling delight in the movement, and to the enjoyment of the rhythm and melody.

Extensive Reading is a correlative of the Intensive Reading and accomplishes, on the one hand, familiarity with books and an increase in vocabulary, and on the other hand fluency in reading, which, analyzed, comprises (1) the rapid recognition of words in sentences, (2) the ability of eye and mind to look ahead, which results in facility in reading collections of words, and (3) that habit of mind which finally leads to the grasp of a whole paragraph, or page even, at a glance.

At an early date in the first term begin the reading in the Supplementary Readers. In some schools it would be well to take the Supplementary Readers of the grade below for this first work. In foreign schools or backward classes the pupils might be given time to read over to themselves at least a part of the selection. This is but a step to the real sight reading which should be given at first once a week, and oftener later, from the Supplementary Readers. There should also be sight reading occasionally from the regular readers.

In reading to the classes be guided by the suggestions in the Course of Study, though not confined to it. Let your choice measure up to the standard of those found there.

The pupil in the Fourth Grade is in a transition period between infancy and youth; his ideals of life are just taking shape, his interests are widening, new sensations and sentiments are awakening and demanding recognition. It is a period of grave responsibility for parent and teacher and in many cases the teacher must shoulder the responsibility of both.

The expansion of interests must be met in the school and a rivalry set up against outside distractions; ideals must be formed on highest models; the emotional development guided in channels of safety. What the child reads enters largely into this. The selections in your Fourth Reader were specially chosen to meet this exigency, but they are only the starting points or guide-posts in the way. What the child learns to love to read and what he chooses to read are the important things.

Will you not, dear fellow workers, meet this responsibility by seeing to it that each boy and girl under your care reads at least *two* good, wholesome books this year? President Eliot says, "The uplifting of the masses depends upon the implanting in the schools a taste for good reading." Thus is our civic duty, as well as our professional responsibility, made plain to us.

COMPOSITION WORK FOR THE PRIMARY GRADES *

I. GENERAL VIEW

Aim and Purpose.—The aim of the work in composition should be to bring about a closer correlation between this and the information and culture studies, for the combined purpose of making the work of each more effective and of greater advantage to the other.

Principles.—While we all recognize that composing is one of the most important agencies in developing power to think and in attaining mastery of expression, we do not always sufficiently realize that it is one of the greatest instrumentalities in the acquisition of knowledge: first, because to write a thoroughly good composition on any subject requires a comprehensive view of it as a whole, a full and exact knowledge of detail, a discriminative appreciation of essentials, and a clear understanding of the inter-relation of its facts; secondly, the effort to write upon a subject forces the mind to formulate in more or less clear, definite statement one's knowledge of the facts, this having the reactive effect of clarifying one's ideas, of exposing and correcting erroneous notions.

Plan of Work.—The composition work will include the two phases — the composition exercises and the inventive composition. The composition exercises, which are based upon the information studies, should be of almost daily occurrence, supplementing the oral work in those studies. One language period per week will, according to schedule, be devoted exclusively to written work in composing. Three weekly exercises will consist of short reproductions of the instruction work, reproductions, more or less close, of stories

*[From a handbook of suggestions on the teaching of English, used to accompany the Course of Study in the Cleveland schools.]

and poems, etc., read or told in illustration of the various lessons, or in connection with the literature, short narrations and descriptions, records of observations, etc. They will constitute practice exercises in composing, and will train for the inventive composition.

The inventive composition will be given whenever any one of the subjects under consideration affords special opportunity. Some subject or phase of a subject being rounded up in the mind of the pupil, the facts having been so presented and so unified that he possesses certain definite knowledge of the subject or phase, which by mental assimilation has become his view of it, and which he is able to give out in the logical, completed form of expression termed "a composition."

Sufficient time may be given to the writing of this composition by combining the weekly composition period with that of some one of the other branches, each in turn being thus displaced by the composition. These compositions should come as often as once in two or three weeks, amounting to from fifteen to eighteen during the year. Both the composition exercises and the composition will constitute practice and training in the two most important forms of English composition,—narration and description. Practice in descriptive composition should follow the three lines, description by parts, description by attributes, and description by both parts and attributes. Narrations should begin with the most elementary relation of incidents or facts, and rise by degrees to "story-telling." Greatest care will have to be exercised by the teacher to keep these pure in style at first, or descriptions will almost inevitably intrude into narrations and *vice versa*, and if unskillfully combined, confusion of style and obscurity of statement will result. Therefore, it is desirable that both teacher and pupils enter into a special study of these two forms, to the end that the pupils may readily distinguish between them and acquire the skill to write in either form as directed. When, however, this skill has been attained, then the pupils may be given practice in using the combined forms, but should then

be able to analyze their own compositions, to distinguish each form wherever used, and be able to perceive the reason for its use.

Subject-Matter.—To admit the important bearing of the composition work on the information studies brings us to the inevitable conclusion that the former can and should be used as a constituent part of the instruction in the information studies wherever possible. Those we find most adaptable to this concentration are grouped, in the course of study, under the heading, "Language Work," and include that round of knowledge studies which naturally form the main part of the child's instruction, comprising, as they do, a study of the natural world around him and of the peoples and social institutions which furnish the human interest. They are Nature Study (plant and animal), Physiology, Geography, History and Civics, Conduct and Morals, and Literature.

As the work of each grade constitutes simply a part of a whole, it is self-evident that the teacher should be entirely familiar, not only with her own part of the work, but with the entire course of composition. She should be informed not alone as to its theory, but also as to the practical application in detail. She should know the foundation of every single phase of her own work, and also, that her own work should fulfill its appointed purpose, she should have an appreciative knowledge of future development of its every phase.

II. FOURTH GRADE COMPOSITION WORK

The pupils entering the Fourth Grade should be able to write good descriptions and narrations of a simple character and within the limitations of their knowledge and vocabulary. There should be a fair degree of merit and correctness in the logical arrangement of ideas and construction of sentences, and also in the detail of spelling, punctuation, capitals, penmanship, etc.

Plan of Work.—Teachers, whose pupils fail to reach the standard of requirement stated above, should review accord-

ing to the methods of the Third Grade. Several tests will probably be necessary to bring out the points in which her class need special review; these having been ascertained, and specific instruction and training having brought the quality of work of the class fairly up to the standard, the teacher will begin her training according to the methods adapted to this grade. The methods of correlation of the composition work with the information studies will differ from those of the three previous grades in two or three essentials.

In the first place, the information, naturally and properly, rapidly outruns both the opportunity and ability of the pupils to reproduce it in written form. Nevertheless the oral or instructive work will be made to a certain degree, and at certain stages to conform to the necessities of the written work. That is, there will be frequent written exercises based upon the daily work in Nature Study, History, Geography, etc., etc. Some phase of the work in each of these branches which can naturally and properly be made the subject of a written exercise being so presented as to afford opportunity for a "composition exercise." In such instances the teacher will lead the pupils, in the oral recitation, to make a summary of the particular phase of the subject under consideration in a logically arranged, clear, succinct statement, showing due appreciation of essentials and omitting unimportant details.

This work will form the basis of a "composition" more or less extended. It may take the character of a mere "exercise" of a single incident or object, or a simple phase of a subject, as, for instance, the description of a stalk of corn, or of the Monitor; or it may be of much wider scope, being based on the instruction covering a more or less wide field, and being the natural rounding up of a course of lessons. Such as, for instance, the summary of the information they have gathered about grains; or the series of events which led up to the triumph of the Monitor. These latter will be inventive compositions and may require longer time, but in either case, whether in the "exercise" or the more formal "composition," the pro-

duct should be complete in itself, and not fragmentary in character.

Much practice must be given in writing pure descriptions, and pure narrations, before the pupils are given subjects in which both are naturally combined. When, however, they have attained a fair degree of skill in each, they may be given a larger freedom in selecting what to write. Descriptions will frequently be introduced into the narrations, and properly so but at this stage of his progress the pupil should introduce these consciously and purposely. He should be trained to critically analyze, first, models, and then his own composition in order to be able to distinguish between the two forms of composition, the narrative and descriptive. He should be given special exercise for practice in combining them with skill and judgment. Descriptions will take on the character of description by parts and by attributes, and much practice given to description of people, in which character sketches form a part. Models for these should be studied with much care, to give the pupils a standard of excellence. In narrations, the originality and individuality of the pupil will have free scope. Care should be exercised to guide rather than control, looking more to the growth in power of self-expression, and making the manner of expression of secondary importance in this instance. In this, however, as in every case, the pupils should be required to pay strict attention to correctness of spelling, punctuation, use of capitals, penmanship, and appearance of manuscript.

WHAT IS "SCIENTIFIC" METHOD IN THE STUDY OF EDUCATION?

EDWARD L. THORNDIKE

Teachers' College, Columbia University

The facts with which the student of education deals—changes in human beings and the causes thereof—have in many cases already been subjected to scientific treatment in the allied sciences of physiology, psychology, sociology and economics. In the case of such facts, the student of education may consider himself and his work scientific when he and it are approved by the experts in these several sciences. If they do not know what is scientific in their respective fields, none does.

In many cases, however, the problems of education are so specialized that their scientific warrant can come only from within. The rule, then, is that what the expert in the science of education deems scientific has the greatest probability of being so. The difficulty with the rule is that in education one cannot be sure of the expert. Consequently one must fall back upon the experience of science in general.

This announces clearly that power of correct prophecy is the test of scientific knowledge and that verifiability by any competent observer is its diagnostic symptom. In so far as our judgments permit correct prophecy, we may be confident that they tally with objective fact; in so far as our methods permit any competent student to repeat every step of our observations and experiments, we may be confident that they are honest.

There are, however, many stages on the road to a statement of fact or law testable by its power to predict the future. Science starts in mere notions or guesses made as a result of impartial observations; it is elaborated into careful hypotheses in consideration of all the evidence at hand; it is developed by ingenuity in observation and experiment and by sagacity in

inference; it is crowned by adroitness and patience in verification. That work may be scientific which provides only the fruitful guess; or only the ingenious apparatus; or only the sagacity of inference; or only the patient toil of repeating others' experiments. The final test of the scientific quality of the notions we have, the hypotheses we frame, the experiments we devise, the records we take, and the like, is of course their power to progress toward verification and prophecy and control. But this test cannot be applied in advance; the only practical test, here, as always, is the judgment of the best experts to be found.

In the present condition of our science about all that can helpfully be said to its workers with respect to scientific method is that he has the greatest probability of doing scientific work in education who is by nature a scientific mind; who studies and practices the methods of the allied sciences with success; who heeds the obvious warnings of logic and scientific method in general; and who estimates all opinions about education in the light of their verifiability.

The reader will have observed that I have carefully avoided stating any fixed criteria of method by which a student of education may rate his work. Only an expert in the science of education has the right to formulate such criteria of method. And even in the case of the expert, the history of science shows that such criteria are either so obvious as to be futile or else are constantly outgrown or even repudiated by the growth of science. It is not discussion of scientific method that produces scientific work; it is rather a process of selection in scientific work that produces whatever useful ideas we have about methods. An ounce of love for fact, inventiveness and scientific ambition is worth a ton of talk about what is scientific. *Fit faber fabricando.*

REPORT OF THE SECRETARY

I. MINUTES OF THE MEETINGS HELD AT ASBURY PARK

(July 3 and 5, 1905)

Monday, July 3.—President Edwin G. Dexter, called the meeting to order and announced the subjects before the Society for discussion.

Motion carried to take up the papers in their order in the *Yearbook*, beginning with Supt. J. Stanley Brown's presentation of the place of commercial work in the high school.

Motion carried that a time limit of five minutes be fixed for discussion at any one time, writers of papers excepted.

Superintendent Brown opened the discussion by presenting concisely the essential things his paper stood for.

There was a good attendance of members, many of whom took part in discussion. Those who participated were C. P. Cary of Wisconsin, Burks of New Jersey, Felmley of Illinois, Kirk of Missouri, Noss of Pennsylvania, Seeley and Broome of New Jersey, Holmes of Illinois, Kratz of Michigan, Halleck of Kentucky, and J. W. Cook of Illinois.

The discussion was vigorous and much to the point, but gave minor details a somewhat undue prominence in proportion to the rationale of the commercial courses in public secondary schools and reasons for the liberal motive and enlarged provision for these courses.

(Mr. Brown's paper has since been republished by a large business company that is interested in the movement for liberal and efficient commercial education.)

Motion carried that Dr. Charles A. McMurry's paper on the training of secondary teachers be next considered.

The secretary stated the main thesis of the paper. This was followed by a spirited discussion led by Dr. DeGarmo, of Cornell University. The author's position was vigorously assailed at several points by various members present; but his

main contention, namely, that the training of secondary teachers calls for practice teaching under expert criticism in universities as well as in normal schools, stood firm. Yet serious obstacles and objections to such training were pointed out, showing some peculiar difficulties of the problem, and making it clear that the problem is far from being solved.

Wednesday, July 5.—The committee on re-naming submitted the following:

Your committee appointed to make recommendations concerning the re-naming of this society made numerous inquiries and invited suggestions as to a more appropriate name. While all who responded were agreed that relief from our present lengthy name was desirable, yet there was no such unanimity expressed in choice of name.

Since the committee did not unite on the same name, the chairman, in the absence of the other members of the committee, deems it wise to report several of the most popular names and simply indicate the preference of two of its members:

The American Education Society, The American Education Club, The National School Masters' Club, The National Society of Education, The National Society for Educational Research, The National Society for Educational Investigation, The American Society for Educational Research.

Because of brevity and the retention of the larger part of the present name of the Society, two of the committee are in favor of adopting the name, The National Society of Education.

Respectfully submitted,

H. E. KRATZ,
Chairman of Committee.

Motion carried to postpone final action on the report of committee on re-naming until action should be taken on the question of affiliation with the American Association for the Advancement of Science; and the question of re-naming was referred back to the committee for further consideration to report at the February meeting, 1906.

Motion carried authorizing the Executive Committee to organize committees for work as suggested on pages 77-78 of the *Fourth Yearbook, Part. II.*

Request was made to have the *Yearbook* sent to members four weeks before the time of the meeting at which it is to be discussed.

Then followed a discussion of manual training and domestic science in secondary education, discussion being based upon the papers by Gilbert B. Morrison, and Ellen H. Richards.

Following the advice of the Society, the Executive Committee has begun organizing committees for making such investigations and reports as can be made better by committees than by individuals. The committee on college-entrance credit for vocational courses is already organized and well started in its work. Others are in process of formation.

The committee working on the problem of college credit for vocational courses are C. A. Herrick, Central High School, Philadelphia; Paul H. Hanus, Harvard University; W. J. F. Bryan, Central High School, St. Louis; A. S. Whitney, University of Michigan; and Principal Prettyman, Horace Mann High School Teachers' College, Columbia University.

II. NOTICES TO ACTIVE MEMBERS

Conduct of Meetings.—There are three well defined aspects of the characteristic work of the National Society for the Scientific Study of Education—

1. The study and scientific investigation of problems, both theoretical and practical, by members in their respective fields of work.
2. The publication of the results of some of such studies in the *Yearbook* of the Society.
3. The discussion of these published studies at the regular meetings of the Society and at smaller local gatherings.

The National Society ought not to underestimate the value of this third aspect; we should not forget that the nature and purpose of our Society demand a plan and conduct of our discussions that will have the dignity of logical order, effectiveness, and really valuable outcome.

Yet such a standard cannot be reached and maintained unless the Society addresses itself seriously to the problem, and every member gives his earnest and loyal co-operation.

There are several things that will help make our meetings of this high and effective character:

1. The place of meeting should be as convenient as possible for members, but not such as will make it easy for anyone to drop in out of mere curiosity. A large, miscellaneous audience is detrimental to the order, freedom and effectiveness of discussion.
2. Admission to the meetings (excepting general open meetings) should be by personal identification or by certificate of membership.
3. It ought to be better understood that those eligible to enter the meetings are (a) members—both active and associate; and (b) guests—those invited by the officers as guests of the Society, and those invited by active members as personal guests. Occasional open meetings may be desirable.
4. There should be provision for definite and progressive discussion; this, however, should never lessen the freedom or limit the opportunity of any member to take part in the discussion.
5. Any member who wishes to discuss some particular topic or aspect of the subject before the Society, or have such topic discussed, should not fail to so inform the Secretary in advance of the meeting and that topic will be taken up in its logical order or given a special place.
6. The time limits for discussions cannot be determined in advance of a meeting; but experience has proved that both necessity and justice may require a limit to the number of times a member may speak, and to the length of his remarks.
7. Non-members should be granted the floor only upon invitation or permission.
8. The presiding officer needs to indicate the scope and order of the discussion, and then enforce strict adherence to this, unless the Society instruct him otherwise.

All of the above suggestions are derived from our past experience as necessary means to the conduct of meetings of a high order of excellence. It is urged that each member watch

this matter with care until the National Society becomes a synonym for effective and valuable meetings.

Business Meetings.—The meeting on Monday afternoon, February 26, will be for Active Members only. Important matters touching the policy, work and conduct of the Society will be considered.

Wednesday, February 28, at 4 p. m., the last session will be held. Unfinished business will be considered and officers elected. Also at this meeting the discussion of the *Yearbook* will be continued.

Membership and Dues.—To accommodate members a name is retained on the membership list until the Secretary gets notice to discontinue it. The general business management of the Society also requires that this practice be maintained.

Miscellaneous—The open meeting at 7:45 p. m., Monday, will no doubt be a very large one. It is therefore urged that Active Members gather as near together as possible at the front, else questions and give-and-take conversation will be lost or impossible.

The First Christian Church, where the meetings for members only will be held, is at the corner of Fourth and Walnut streets. The Warren Memorial Church is at Fourth and Broadway.

Nominations for active membership should be sent to the Secretary, or handed to some member of the Executive Committee before 3 o'clock p. m., Monday, February 26.

The Seelbach Hotel will be the headquarters of the Society.

Those members who do not attend the Louisville meetings are urged to take up a study of the *Yearbook* in local round-table discussions.

M. J. HOLMES, *Secretary.*

III. FINANCIAL STATEMENT

M. J. Holmes, Secretary-Treasurer, in account with The National Society for the Scientific Study of Education:

Debits—

To cash balance as per statement Feb. 25, 1905.....	\$233 88
To membership dues Feb. 25, to Dec. 30, 1905.....	301 00
To sales of books, etc.....	12 20
	<hr/> \$547 08

Credits—

By printing and stationery.....	\$162 20
By office help and supplies.....	64 30
By traveling expenses.....	69 98
By cash to Univ. of Chicago (See items and checks) ..	60 28
By postage and express.....	32 81
By telephone and telegraph.....	3 55
	<hr/> \$393 12
Balance due the National Society.....	\$153 96

The University of Chicago Press, in account with The National Society for the Scientific Study of Education:

Statement for Quarter Ending December 31, 1905.

Debits—

Balance due University of Chicago Press per statement of September 30, 1905.....	\$78 36
To reprint 500 Second Supplement to <i>First Yearbook</i> , invoice December 30, 1905.....	32 25
	<hr/>
	\$110 61

Credits—

By cash November 4, 1905.....	\$ 50 00
By sale of publications—	
October	\$79 24
November	17 27
December	23 62
	<hr/>
	\$120 13
Less returns	5 00
	<hr/>
	\$115 13
Less 15 per cent.....	17 27 97 86 147 86 \$ 37 25
	<hr/>
Balance standing to the credit of the Society Dec. 31, 1905.....	\$191 21

CONSTITUTION
OF
THE NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY
OF EDUCATION
[REORGANIZED NATIONAL HERBART SOCIETY]

ARTICLE I.—ITS OBJECT

The name suggests the general purpose of the society. It contemplates a serious, continuous, intensive study of educational problems. It stands for no particular creed or propaganda. In aim and spirit and method it seeks to be scientific.

ARTICLE II.—PLAN OF ORGANIZATION

SECTION 1. *Members.*—(1) The society consists of active and associate members.

(2) Active Members. The active members shall, for the present, be limited to one hundred. [This limit is now removed.] Only active members may take part in the discussions.

(3) The chief qualification for active membership shall be the possession of time, ability, and inclination to undertake a serious scientific study of educational problems. A fee of three dollars per year for each active member will be charged.

(4) Election to active membership is by a majority vote of the active members present.

(5) Associate Members. Anyone may become an associate member by paying a yearly fee of one dollar. Such members shall be entitled to receive the publications of the society and to attend its public meetings.

SEC. 2. *Officers and Committees.*—The officers of the society shall consist of a president, a secretary-treasury, and an executive committee, who shall be elected yearly at the winter session of the society. The executive committee shall consist of the president, the secretary-treasurer, and four other active members of the society, of whom two are to be elected each year at the winter meeting. It shall be the duty of the executive committee to carry into effect the will of the active membership respecting the subjects to be discussed at its meetings, the matter which is to appear in its publications, and to present at each meeting names of suitable candidates for admission to active membership.

SEC. 3. *Publications.*—(1) The society shall publish "The Yearbook of the National Society for the Scientific Study of Education," and such supplements as it sees fit to add.

(2) The time of publishing the yearbook or supplements shall be determined by the committee.

(3) These publications shall be sent to the active and associate members of the society.

ARTICLE III

SECTION I. *Time and Place of Meeting.*—(1) This society shall meet twice a year.

(2) One of these meetings shall be in connection with, and at the same time and place as, the National Educational Association; the other in connection with, and at the same time and place of meeting as the Department of Superintendence.

(3) All the details of these meetings shall be determined by the executive committee.

ARTICLE IV

This constitution may be amended at any regular winter meeting by vote of two-thirds of the active members present.

ACTIVE MEMBERS OF THE NATIONAL SOCIETY FOR THE
SCIENTIFIC STUDY OF EDUCATION *

- Edwin A. Alderman, president University of Virginia, Charlottesville, Va.
Zonia Baber, School of Education, Chicago, Ill.
Frank P. Bachman, Ohio University, Athens, Ohio.
William C. Bagley, State Normal School, Dillon, Mont.
C. M. Bardwell, superintendent of schools, Aurora, Ill.
R. H. Beggs, Whittier School, Denver, Colo.
Ezra W. Benedict, principal of high school, Warrensburg, N. Y.
Francis G. Blair, State Normal School, Charleston, Ill.
Frederick E. Bolton, Iowa State University, Iowa City, Iowa.
Richard G. Boone, editor *Education*, 80 Bruce avenue, Yonkers, N. Y.
Eugene C. Branson, president State Normal School, Athens, Ga.
Francis B. Brandt, Central High School, Philadelphia, Pa.
Sarah C. Brooks, principal Baltimore Teachers' Training School, Baltimore, Md.
Stratton D. Brooks, superintendent of schools, Cleveland, O.
Edwin C. Broome, superintendent of schools, Rahway, N. J.
Elmer E. Brown, University of California, Berkeley, Calif.
George P. Brown, editor *School and Home Education*, Bloomington, Ill.
John F. Brown, University of Wyoming, Laramie, Wyo.
J. Stanley Brown, superintendent Township High School, Joliet, Ill.
Martin G. Brumbaugh, University of Pennsylvania, Philadelphia, Pa.
William L. Bryan, president Indiana University, Bloomington, Ind.
W. J. S. Bryan, Central High School, St. Louis, Mo.
George V. Buchanan, superintendent of schools, Sedalia, Mo.
Edward F. Buchner, University of Alabama, University, Ala.
Jesse D. Burks, City Training School, Albany, N. Y.
W. H. Burnham, Clark University, Worcester, Mass.
B. C. Caldwell, president Louisiana State Normal School, Natchitoches, La.
W. T. Carrington, state superintendent, Jefferson City, Mo.
Clarence F. Carroll, superintendent of schools, Rochester, N. Y.
C. P. Cary, state superintendent, Madison, Wis.
Charles E. Chadsey, superintendent of schools, Denver, Colo.
W. H. Cheever, State Normal School, Milwaukee, Wis.
P. P. Claxton, University of Tennessee, Knoxville, Tenn.
David E. Cloyd, 541 West 123d St., New York, N. Y.
Alexander B. Coffey, Madison, Wis.
John W. Cook, president State Normal School, De Kalb, Ill.
Flora J. Cooke, Francis W. Parker School, Chicago, Ill.

*It is assumed that a member wishes to continue membership until he notifies the Secretary of his withdrawal.

- William J. Crane, superintendent of schools, Marshalltown, Iowa.
Ellwood P. Cubberly, Leland Stanford University, Stanford University, Calif.
Frank M. Darling, Chicago Normal School, Chicago, Ill.
Wm. M. Davidson, superintendent of schools, Omaha, Neb.
Washington S. Dearmont, president State Normal School, Cape Girardeau, Mo.
Charles DeGarmo, Cornell University, Ithaca, N. Y.
John Dewey, Columbia University, New York, N. Y.
Edwin G. Dexter, University of Illinois, Urbana, Ill.
Richard E. Dodge, Columbia University, New York, N. Y.
F. E. Doty, High School Inspector, Madison, Wis.
Augustus S. Downing, Education Department, Albany, N. Y.
F. B. Dressler, University of California, Berkeley, Calif.
Charles B. Dyke, Oracle, Ariz.
Gertrude Edmund, Lowell Training School, Lowell, Mass.
A. Caswell Ellis, University of Texas, Austin, Tex.
W. H. Elson, superintendent of schools, Grand Rapids, Mich.
Frederic E. Farrington, University of California, Berkeley, Calif.
David Felmley, president Illinois State Normal University, Normal, Ill.
Frank A. Fitzpatrick, 93 Summer street, Boston, Mass.
George M. Forbes, Rochester University, Rochester, N. Y.
J. M. H. Frederick, superintendent of schools, Lakewood, Ohio.
J. M. Frost, superintendent of schools, Waukegan, Mich.
Charles B. Gilbert, 1170 Broadway, New York, N. Y.
Newell D. Gilbert, superintendent of schools, DeKalb, Ill.
Wilbur F. Gordy, superintendent of schools, Springfield, Mass.
Maxmilian P. E. Groszmann, Groszmann School, Plainfield, N. J.
W. H. Hailman, Chicago Normal School, Chicago, Ill.
Reuben Post Halleck, Boys' High School, Louisville, Ky.
Rufus H. Halsey, president State Normal School, Oshkosh, Wis.
Paul H. Hanus, Harvard University, Cambridge, Mass.
Ada Van Stone Harris, supervisor kindergarten and primary grades, Rochester, N. Y.
W. H. Hatch, superintendent of schools, Oak Park, Ill.
Mrs. Josephine W. Heermans, principal Whittier School, Kansas City, Mo.
J. W. Henninger, Macomb, Ill.
Walter L. Hervey, Park avenue and Fifty-ninth street, New York, N. Y.
Edgar L. Hewett, U. S. National Museum, Washington, D. C.
Albert Ross Hill, Missouri Teachers' College, Columbus, Mo.
Florence Holbrook, Forestville School, Chicago, Ill.
Manfred J. Holmes, Illinois State Normal University, Normal, Ill.
Wilber W. Howe, superintendent of schools, Whitehall, N. Y.
Wilbur S. Jackman, University of Chicago, Chicago, Ill.
Walter Ballou Jacobs, Brown University, Providence, R. I.
Jeremiah W. Jenks, Cornell University, Ithaca, N. Y.

- Lewis H. Jones, president State Normal College, Ypsilanti, Mich.
Grant Karr, City Training School, New York, N. Y.
John A. Keith, State Normal School, DeKalb, Ill.
Calvin N. Kendall, superintendent schools, Indianapolis, Ind.
John R. Kirk, president State Normal School, Kirksville, Mo.
Henry E. Kratz, superintendent of schools, Calumet, Mich.
Ossian H. Lang, editor, 61 E. Ninth street, New York, N. Y.
Isabel Lawrence, State Normal School, St. Cloud, Minn.
Homer P. Lewis, superintendent of schools, Worcester, Mass.
George H. Locke, University of Chicago, Chicago, Ill.
L. C. Lord, president State Normal School, Charleston, Ill.
Charles D. Lowry, district superintendent of schools, Chicago, Ill.
G. W. A. Luckey, University of Nebraska, Lincoln, Neb.
Herman T. Lukens, State Normal School, California, Pa.
E. O. Lyte, president State Normal School, Millersville, Pa.
John A. MacVannel, Columbia University, New York, N. Y.
David R. Major, State University, Columbus, Ohio.
C. E. Mann, superintendent of schools, Batavia, Ill.
Frank A. Manny, Ethical Culture School, Central Park, West and Sixty-third street, New York, N. Y.
Elizabeth Mavity Cunningham, State Normal University, Normal, Ill.
Guy E. Maxwell, president State Normal School, Winona, Minn.
Wm. H. Maxwell, superintendent of schools, New York, N. Y.
Arthur N. McCallum, superintendent of schools, Austin, Tex.
Charles McKenny, president State Normal School, Milwaukee, Wis.
Charles A. McMurry, State Normal School, California, Pa.
Frank M. McMurry, Columbia University, New York, N. Y.
I. C. McNeill, president State Normal School, West Superior, Wis.
G. R. Miller, State Normal School, Greeley, Colo.
Wm. A. Millis, superintendent of schools, Crawfordsville, Ind.
J. F. Millspaugh, president State Normal School, Los Angeles, Calif.
Paul Monroe, Columbia University, New York, N. Y.
Will S. Monroe, State Normal School, Westfield, Mass.
Ernest C. Moore, University of California, Berkeley Calif.
George A. Newton, superintendent of schools, Greenville, Texas.
Theodore B. Noss, president State Normal School, California, Pa.
M. V. O'Shea, University of Wisconsin, Madison, Wis.
Simon N. Patten, University of Pennsylvania, Philadelphia, Pa.
George D. Pickels, State Normal School, Natchitoches, La.
Rosalie Pollock, Primary Supervisor, Salt Lake City, Utah.
R. R. Reeder, Hastings-on-Hudson, N. Y.
J. F. Reigart, 109 W. Fifty-fourth street, New York, N. Y.
Emily J. Rice, School of Education, Chicago, Ill.
C. R. Richards, Columbia University, New York, N. Y.
R. N. Roark, Kentucky University, Lexington, Ky.
Stuart H. Rowe, Brooklyn Training School for Teachers, Prospect Place
near Nostrand avenue, Brooklyn, N. Y.

- J. E. Russell, Columbia University, New York, N. Y.
Myron T. Scudder, principal State Normal School, New Paltz, N. Y.
Levi Seeley, State Normal School, Trenton, N. J.
Homer Seerley, president State Normal School, Cedar Falls, Iowa.
Burgess Shank, State Normal School, Valley City, N. D.
James J. Sheppard, principal High School of Commerce, New York, N. Y.
Waite A. Shoemaker, president State Normal School, St. Cloud, Minn.
Henry W. Shryock, State Normal University, Carbondale, Ill.
Herbert M. Slauson, superintendent of schools, Ann Arbor, Mich.
David E. Smith, Columbia University, New York, N. Y.
David S. Snedden, Leland Stanford Jr. University, Stanford University,
Calif.
Gerard T. Smith, superintendent of schools, Moline, Ill.
Z. X. Snyder, president State Normal School, Greeley, Colo.
F. Louis Soldan, superintendent of instruction, St. Louis, Mo.
John K. Stableton, superintendent schools, Bloomington, Ill.
Edward D. Starbuck, Earlham College, Richmond, Ind.
William E. Stark, Ethical Culture School, New York, N. Y.
W. S. Sutton, University of Texas, Austin, Texas.
Joseph S. Taylor, district superintendent, 2275 Aqueduct Ave., New York,
N. Y.
Edward L. Thorndike, Columbia University, New York, N. Y.
Charles H. Thurber, editor, Ginn & Co., Boston, Mass.
A. W. Tressler, University of Wisconsin, Madison, Wis.
C. C. Van Liew, president State Normal School, Chico, Calif.
Jas. H. Van Sickie, superintendent of schools, Baltimore, Md.
Dwight B. Waldo, president State Normal School, Kalamazoo, Mich.
Elmer W. Walker, superintendent State School for Deaf, Delavan, Wis.
Sarah J. Walter, Hampton Institute, Hampton, Va.
A. S. Whitney, University of Michigan, Ann Arbor, Mich.
John J. Wilkinson, Elmhurst, Ill.
J. N. Wilkinson, president State Normal School, Emporia, Kan.
L. E. Wolfe, superintendent of schools, San Antonio, Texas.

CLIFFORD LIBRARY

THE FIFTH YEARBOOK
OF THE
NATIONAL SOCIETY FOR THE SCIENTIFIC STUDY OF EDUCATION

PART II
THE CERTIFICATION OF TEACHERS

A CONSIDERATION OF PRESENT CONDITIONS WITH SUGGESTIONS AS
TO FUTURE IMPROVEMENT

BY

ELLWOOD P. CUBBERLEY

Professor of Education, Leland Stanford Junior University

EDITED BY
MANFRED J. HOLMES
SECRETARY OF THE SOCIETY

THIS YEARBOOK WILL BE DISCUSSED AT THE FEBRUARY (1907) MEETINGS OF THE
SOCIETY TO BE HELD IN CHICAGO. DEFINITE PROGRAM
WILL BE DULY ANNOUNCED

CHICAGO
THE UNIVERSITY OF CHICAGO PRESS
1906

SURREY LIBRARY

COPYRIGHT 1906 BY
MANFRED J. HOLMES
SECRETARY OF THE SOCIETY

Published December, 1906

OFFICERS AND EXECUTIVE COMMITTEE

REUBEN POST HALLECK,
Boys' High School, Louisville, Ky.
President

C. P. CARY,
State Superintendent, Madison, Wis.

JAMES H. VAN SICKLE,
Superintendent of Schools, Baltimore, Md.

STRATTON D. BROOKS,
Superintendent of Schools, Boston, Mass.

W. S. SUTTON,
University of Texas, Austin, Texas.

MANFRED J. HOLMES,
Illinois State Normal University, Normal, Ill.
Secretary-Treasurer
and
Editor of Yearbook

UNIVERSITY LIBRARY

TABLE OF CONTENTS

	PAGE
I. INTRODUCTION: THE PROBLEM STATED	7
II. LOCAL EXAMINATION SYSTEMS: FORCES OPERATING AGAINST	12
1. The Town System	12
2. The County System	16
3. Steps Tending to Break Down the County System	19
4. The City Certificate	24
III. LOCAL EXAMINATION SYSTEMS—<i>continued</i>	27
Subjects and Certificates	27
1. Examination Subjects	27
2. Grades of Certificates Issued	31
IV. LOCAL EXAMINATION SYSTEMS—<i>continued</i>	37
Examination Details	37
1. Validity of Certificates	37
2. Number of Examinations	38
3. Special Examinations and Temporary Certificates	40
4. Fees	42
5. Renewals	43
V. STATE SYSTEMS OF CERTIFICATION	47
1. State Systems Superseding Local Systems	47
2. State Systems for Higher Certification	51
VI. SPECIAL FORMS OF CERTIFICATES	59
1. High-School Certificates	59
2. Kindergarten Certificates	62
3. Special Certificates	63
VII. SUPERVISORY CERTIFICATES	65
1. Present Conditions	65
2. Two Fundamental Changes Needed	68
a) Evolution of the Educational Leader	68
b) Elimination of the Superintendency from Politics	70
VIII. DEFECTS AND REMEDIES	73
1. Certain Defects Considered	73
2. A Proposed Plan for the Certification of Teachers	78
a) Elementary-School Certificates	78
b) High-School Certificates	80
c) Special Certificates	82
d) Supervisory Certificates	83
e) State Life-Certificates or Diplomas	85
3. Certain Features of the Plan	86
Discussion—John A. H. Keith	89

TABLES

TABLE	
I. Increase in the Number of Trained Teachers in Massachusetts and Connecticut	1
II. Development of the State Examination System in Connecticut	1
III. Examination Requirements for the Three Grades of Local Certificates in Thirty-seven States	2
IV. Number of Subjects Required for State Diplomas in Forty States	5
V. Examination Subjects Required for State Diplomas in Forty States	5

THE FIFTH YEARBOOK

CHAPTER I

INTRODUCTION: CONDITIONS: THE PROBLEM

From small beginnings we have gradually evolved, during the past fifty to seventy-five years, a series of American school systems of which we may feel justly proud. Though each state and territory has a different school system, the systems in different states often differing greatly in important features, there is nevertheless such a similarity of aim and purpose between the different state school systems that we not uncommonly group them all together and speak of them collectively as our American public-school system. In this so-called American public-school system we teach sixteen and a half millions of children each year, nearly half a million teachers are required for the work, and for this system we yearly expend over a quarter of a billion of dollars. On an average, $61\frac{4}{5}$ per cent. of all expenditure is for the one item of teachers' salaries, though the percentage for this item varied in 1903-4, from $37\frac{1}{5}$ per cent. in Nevada to $87\frac{6}{7}$ per cent. in Georgia. In but seven states, however, was the percentage so expended less than 55, while in eleven states it exceeded 75 per cent. of all expenditures for schools.

For the training of future teachers for the work of instruction we maintain about 180 state normal schools, upon which we expend about four millions of dollars each year. In addition, more than fifty cities maintain city training-schools for the preparation of future teachers for the schools of these cities, and about 100 private normal schools assist in giving some kind of training to those who expect to teach. Two hundred and thirty colleges and universities also offer special courses and contribute their quota of teachers for the higher work of instruction. In 1903-4, 449 private high schools and 272 public high schools also offered some courses of instruction intended for the preparation of future teachers.

All of these institutions tend to increase the number of trained teachers in the schools, and in most states the number of such is

slowly increasing ; but so large is the number who teach but a short time, and so easy is it to enter upon the work of teaching, in most states without the necessity of any training of a professional nature, that the number of trained teachers actually teaching in the different states is not very large. Perhaps, averaging all the different states of the Union, 15 to 20 per cent. of all the teachers in our schools have received some special training before entering upon the work of a teacher. The remaining 80 to 85 per cent. have been prepared by private study, and tested wholly by examination and experience, and have had no special professional preparation whatever for the work of teaching.

Not only is the largest item of expense in all schools that for the salary of the teacher, but the teacher is also the most important single factor in determining the efficiency of our educational system. Hence it is very important not only that the teacher possess an adequate academic and professional education, but that he or she also be imbued with the right attitude toward the institutions of democracy which we cherish, and toward those ethical principles which we as a people hold to be of abiding worth.

Obviously so costly and important a work as that of educating the future citizens of our nation cannot be thrown open without qualification to anyone who wishes to enter it. Just as the state must from time to time, determine what requirements it deems advisable to enforce as to subjects of instruction, length of school term, minimum tax-rate to be levied for education, attendance at school, additional advantages which must be provided, and other items looking toward the enforcing of the educational rights of children, so also must the state, from time to time, set the educational and professional requirements which it must exact from those who expect to teach in the schools which the state has deemed it wise to provide.

To determine whether or not any individual possesses these educational prerequisites for admission to the profession of teaching, two methods are available. One is to examine the candidate by giving him or her a written or oral examination, or both, the examination to be given either by the laymen of the school committee or by a professional examining body; and the other is to accept satisfactory evidence of proper education and professional

training, such as college or normal-school diplomas, or certificates of qualification issued elsewhere, as being the equivalent of the oral or written test. It is not possible, in most states, under present conditions, to use the second method alone, though it is obviously much the better of the two; so for some time to come the two methods must exist side by side.

The idea of requiring those who wish to teach to pass an examination to prove their fitness is an old one. In its rudimentary beginnings it is as old as schools themselves. The examination of the candidate for master was one of the functions of the mediaeval university, and in some form or other it has been in use ever since. With the rapid development of state and national systems of public education during the nineteenth century, an examination of candidates for entry to the teaching profession has come to be one of the established rights and duties of the state. In our own country it has been customary, from the earliest colonial time, for communities to appoint a committee to examine the prospective school-master, and to satisfy themselves that he possessed the requisite moral and scholastic qualifications to be worthy of being intrusted with the task of instructing the young. Unless he could pass this test, he could not be employed as a teacher; and the survival of this old custom, once so common among our people, is still found in parts of New England, where it is made the duty of the school committee to "require full and satisfactory evidence of the moral character" of new teachers, and to "ascertain by personal examination their qualifications for teaching and their capacity for the government of schools."¹ Likewise the very common legal requirement that "no teacher shall be employed in any school supported by the public funds, or any part thereof, until he has received a certificate of qualification therefor,"² issued and signed by the proper authority upon a public examination, or upon the presentation of acceptable credential, is only an elaboration of the early idea. To provide for this examination we consider to be not only the right, but also the duty, of the state.

To this end each of our states and territories has established

¹ *Revised Laws of the Commonwealth of Mass., chap. 42, sec. 28.*

² *Revised Statutes of Mo., 1899, sec. 9796.* Similar requirements are to be found in the school laws of other states.

some form of examination and certification system, by which the selection from among those who wish to teach may be made and the best of a number of applicants may be selected. The different systems vary much in nature, scope, and standards, and some are certainly much more effective than are others in obtaining a well-educated and a professional body of teachers for the schools, and in keeping them alive professionally after they have once been obtained.

In certain New England states,³ as we have just said, we find a survival of the old colonial system, where a body of laymen, representing the local community, passes upon the qualifications of those whom they wish to employ. In a few other states, as for example Oklahoma,⁴ the county has been made the unit and the county examination is supreme. Under this system all teachers must take the county examination in the county in which they expect to teach, and the county certificates are not valid in other counties,⁵ and are good but for a limited period. In other states, as for example Alabama,⁶ the state examination system rules. All teachers must pass the regular state examination set by the state examining board, even including the graduates of the normal schools of the state. Between these extremes there are many variations and combinations, the usual plan being a combination by which the county grants two or three grades of county certificates, while the state certificating authorities grant professional state certificates and life

³ Massachusetts and Connecticut are good examples.

⁴ See *School Laws of Oklahoma*, Art. XII.

⁵ The Oklahoma law provides that three grades of certificate shall be issued, valid for one, two, and three years respectively; that "no certificate shall be of force except in the county in which it is issued" (Art. XII, sec. 7, *Oklahoma Code*, sec. 5820); that "no certificate shall be issued by any county board or county superintendent, except upon public examination as provided for in this act;" and if any officer violates this provision, he "shall be deemed guilty of a misdemeanor and upon conviction fined in the sum of not less than \$100 nor more than \$500" (*School Laws*, Art. XII, sec. 9, *Code*, sec. 5822). Section 7, however, provides that a county superintendent may indorse a first-grade certificate from another county, "provided the applicant pays the regular examination fee of \$1 for such indorsement."

⁶ See the very detailed and elaborate law recently enacted entitled: "An Act to establish a uniform system for the examination and licensing of teachers of the public schools." Approved February 10, 1899.

diplomas to experienced teachers. In most states the two systems exist side by side and frequently overlap in their functions.

Among the plans in use in the different states there is so great a diversity in standards and procedure that the ability of a teacher to transfer from one county to another or from one state to another is in many cases most unnecessarily restricted. Many of these restrictions are unwarranted by any educational standard and serve no useful educational purpose, and some are so absolutely unnecessary and so narrowly restrictive that they almost seem to have been established for the purpose of providing per diem work for the board of examiners, or for the purpose of preventing teachers from elsewhere coming into the county or state to interfere with the law of supply and demand in the home field. From an educational point of view many of the restrictions are indefensible.

In the number and nature of the subjects required for the examinations, the kinds of certificates issued, and the recognition of diplomas of graduation and proficiency in lieu of an examination, there is also great diversity, though there is here a possibility of reducing these to common units so as to provide for a much wider interchange. It will be our purpose, in the succeeding chapters, to examine, somewhat in detail, the conditions which at present prevail in the United States with reference to the certification of teachers, to point out certain tendencies which have manifested themselves, in the process of evolving higher standards, and to offer some suggestions as to lines along which improvement may be made.

CHAPTER II

LOCAL EXAMINATION SYSTEMS

FORMS OF: FORCES OPERATING AGAINST

The various systems in use for certificating teachers in the different states and territories, though differing much in minor details, are nevertheless reducible to a very few type systems. In Massachusetts and Connecticut we find the town system of local certification. In all the other states and territories, a few distinctive local systems in part excepted, the various systems are reducible to one of three type plans. In the first plan the power of certification is vested almost entirely in the county authorities. In the second plan the power is vested almost entirely in the state authorities, the county superintendent merely performing certain clerical duties in connection with the giving of the examinations and the transmitting of the papers. In the third plan the two systems exist side by side, and two forms of certification, the two often overlapping, are provided for by the state.

I. THE TOWN SYSTEM

Massachusetts and Connecticut still maintain the old local examination system, in which the certificating and employing functions are combined in the same body of laymen. This is a survival of the old colonial system. The school committee of the different towns of Massachusetts,¹ and the school visitors or the town school committees in the different towns of Connecticut,² are required by law to examine all persons desiring to teach in the public schools of the town. This is to be done by the school committees or school visitors, either acting as a body or through a small committee. The law requires that the school committee (or school visitors) shall satisfy themselves as to the moral character of the applicant and as to his or her "ability to teach the common-school subjects," after which they shall issue to each applicant "a certificate authorizing the holder to teach in any public school in the town or district so long

¹ *Revised Laws of the Commonwealth of Mass.*, chap. 42, sec. 28.

² *General Statutes of Conn.*, chap. 140, sec. 2245.

as desired, without further examination unless especially ordered," or unless the certificate is revoked for cause.³ Normal-school diplomas are accepted in lieu of such an examination in both states, and Connecticut has recently instituted a state examination system,⁴ with state certificates valid throughout the state, as supplementary to the local examination system, but not supplanting it.

Previous to 1898, Rhode Island belonged to the same class as Connecticut and Massachusetts, but in that year this state passed directly from the local to the centralized state examination system, under the control of the State Board of Education, and with state certificates valid throughout the state. Speaking of the Rhode Island plan, in an address on "A Quarter-Century of Educational Progress in Rhode Island," Mr. Stockwell said:

Under the original plan the determination of the qualifications of teachers was left entirely to each local school committee, though the selection or hiring was, under the district system, with the trustee. Under such an arrangement there could be no common standard or uniformity. With the best of intentions and the utmost effort there must necessarily exist a great diversity in requirements and as many standards as there are committees.

It was impossible for the results of such conditions to be satisfactory. Accordingly one feature of the law which was passed in 1898 "to secure a more uniform high standard in the public schools of the state" was to take the power of issuing certificates to teachers out of the hands of the local authorities and place it with the State Board of Education. The details of the scheme were left entirely to them, and their plan is simply this: to provide three grades of regular certificates, one to stand for a college or university education, one for a high-school or academic training, and one for preparation in the common elementary branches alone; to which must be added, in each case, some special or professional qualification. A certificate of the first class is called a First Grade certificate; one of the second class, a Second Grade certificate; and one of the third class, a Third Grade certificate.

³ *General Statutes of Conn.*, chap. 140, sec. 2245.

⁴ This law was first passed in 1884, but the acceptance of these state certificates was optional until 1895, when their acceptance was made compulsory with district authorities. (*Conn. School Rept.*, 1897, pp. viii, ix.)

For details as to the Connecticut state examination system see *Rept. Conn. Board of Education*, 1903, pp. 94-108.

Massachusetts tried to institute a similar state examination system, but the law, after it had remained on the statute-book for a number of years unenforced, was recently repealed. (*Acts of 1904*, chap. 234.)

. . . As a temporary measure, to enable the old system to become adjusted to the new, a certificate of lower grade than the Third has been, and is still, issued, called the Fourth Grade, which can run only two years, and the necessity for which, it is hoped, will not long exist.⁸

Such an examination as that required to be given by the school committees of Massachusetts or by the committees or visitors of Connecticut, when given by laymen, is usually of little value as a test of the preparation or teaching possibilities of the prospective teacher. It is little more than what the district clerk, in states following the county system, uses when he inspects the different properly certificated applicants with a view to employing one to teach the school of his district. To most laymen all teachers are very much alike, and too often much more emphasis is placed on a pleasing personality and an attractive appearance than upon real preparation for the work of instruction. It is difficult for the average layman to understand why anyone of sufficient maturity cannot teach what he has once studied, and why all who have prepared for the work of teaching are not equally competent. When the test is that of a personal and oral examination, it is more than probable that low standards will prevail; and the low wages paid to teachers in some of the towns of Massachusetts and Connecticut indicate that low standards do prevail. Low standards and low wages usually go together.

All such desirable features as common educational standards, uniform and steadily increasing requirements, and a general interchange of the higher certificates are practically impossible under this plan of compulsory local examination by the laymen of each local school committee. In the evolution of a national system this plan represents one of the earliest and one of the most primitive methods of certification. The unsatisfactory results obtained under it have caused it to be abandoned by almost all the states of the Union which have ever used it, and the future will probably see its entire elimination as a means of certificating teachers for the schools of the state. It belongs with many other purely local features which have been eliminated, one by one, in favor of broader and more general state requirements.

Even in Massachusetts and Connecticut the method is fast approaching extinction. The rapid increase in the number and per-

⁸ *Rhode Island School Rept.*, 1900, sec. vi, pp. 11, 12.

centage of normal-trained teachers in both states is one important factor in this connection, and the spread of the state examination system in Connecticut is another. The effect of these two factors may be seen from the following statistical tables:

TABLE I

SHOWING THE INCREASE IN THE NUMBER OF TRAINED TEACHERS IN MASSACHUSETTS AND CONNECTICUT IN THE PAST TWENTY YEARS

YEAR	PERCENTAGE OF TRAINED TEACHERS IN		YEAR	PERCENTAGE OF TRAINED TEACHERS IN	
	Massachusetts	Connecticut		Massachusetts	Connecticut
1885.....	25	10	1895.....	31	30
1886.....	25	11	1896.....	32	34
1887.....	27	13	1897.....	32	37
1888.....	27	14	1898.....	32	35
1889.....	27	15	1899.....	35	36
1890.....	28	16	1900.....	36	39
1891.....	29	19	1901.....	38	41
1892.....	30	20	1902.....	40	44
1893.....	31	27	1903.....	44	45
1894.....	32	30	1904.....	46	

TABLE II

SHOWING THE DEVELOPMENT OF THE STATE EXAMINATION SYSTEM IN CONNECTICUT SINCE ITS BEGINNING

YEAR	TOTAL NO. TEACHERS	STATE CERTIFICATES		TOTAL NO. STATE CERTIFI- CATES IN FORCE
		No. Candidates	No. Receiving	
1884.....	2,909	153	24	24
1885.....	2,998	253	47	66
1886.....	3,038	166	42	90
1887.....	3,092	296	66	126
1888.....	3,122	194	33	166
1889.....	3,116	347	52	152
1890.....	3,226	283	36	113
1891.....	3,300	191	151	303
1892.....	3,344	221	124	172
1893.....	3,415	250	106	211
1894.....	3,998	185	117	258
1895.....	3,633	313	148	286
1896.....	3,722	396	151	336
1897.....	3,796	390	171	584
1898.....	3,947	410	154	608
1899.....	4,092	490	149	708
1900.....	4,175	476	173	786
1901.....	4,252	456	183	854
1902.....	4,320	495	195	780
1903.....	4,400	637	203	1,009

II. THE COUNTY SYSTEM

In the strict county examination and certification plan, the county superintendent, or the county examining board if such a body has been provided for, prepares the examination questions, gives the examinations, grades the papers, and grants the certificates of the different grades to those who pass, and the certificates, when granted, are not valid outside of the county where issued. Illinois, Maryland, North Carolina, Oklahoma, and Wisconsin are good examples of the strict county plan. In Illinois it is made the duty of the county superintendent of each county "to grant certificates to such persons as may, upon due examination, be found qualified."¹ By passing an examination based entirely upon the common-school subjects the applicant secures a second-grade county certificate which is good for one year, and by passing an examination on "the elements of the natural sciences" and on "physiology and the laws of health," in addition to the common branches, the applicant secures a county certificate which is good for two years. These certificates may be renewed at the option of the county superintendent, but they are not valid in any other county.² Similarly, the North Carolina law provides that "the county superintendent of schools in each county shall publicly examine all applicants of good moral character for teacher's certificates on all subjects required to be taught in the public schools, and also on the theory and practice of teaching," and that "no certificate shall be valid except in the county in which it is issued."³ Similarly, the Wisconsin law provides that "if any person desires to teach in any of the common schools of the state, he shall procure a certificate from the proper examining officer, and no certificate shall have force except in the district of the officer by whom issued;"⁴ and, further, that "it shall not be lawful for any county superintendent to indorse a certificate issued by any other county superintendent, nor to extend the life of any certificate beyond

¹ Illinois: "An Act to establish and maintain a system of Free Schools," Art. VII, secs. 3, 5.

² *North Carolina Statutes, Revisal of 1905*, sec. 4162, as amended by *Acts of 1901*, chap. 4, sec. 37, and *Acts of 1905*, chap. 533, sec. 9.

³ Sanborn and Berryman's *Annotated Statutes of Wisconsin*, 1899, chap. 27, sec. 448.

the limits fixed by law.⁹ The Oklahoma law has been quoted in the previous chapter.¹⁰

This strict county examination and certification plan, used to be far more common than it is today, and it is gradually being discarded in favor of higher standards and a more liberal method of certification. It represents a narrow and local view of the nature and purpose of public education, and the standards upon which it is based are generally low. In the evolution of a broader system of certification and a system of inter-county and interstate recognition of certificates, the strict county plan represents a stage only a step higher than the town system of Massachusetts and Connecticut. It is a step higher, not so much because of the larger area of a county, for the number of teachers included may be even less, but in that the examining body is a semi-professional or wholly professional one instead of a body of laymen. The strict county plan, though, has so many disadvantages from the point of view of a satisfactory system that the continuance of its use is defensible only where the standards of the state are so low or so widely divergent that a change to any more liberal system would be certain to lead to even worse results. Our schools should cease to be mere local institutions, ministering almost wholly to the needs of local communities and drawing their teachers from the community itself, and should become part of a system of free public state education, drawing teachers from all parts of the state and ministering to the needs of the state as a whole. Localism in the selection of teachers and in the aim of education has been and still is one of the most serious defects of our system of free public education, and as fast as possible those elements which make for localism as opposed to the broader interests of the state, of which narrow restrictions in the certification of teachers is certainly one, ought to be eliminated from our schools.

There should be as little restriction as possible on the ability of a good teacher to move about, either from county to county or from state to state. Such freedom of movement is in the interest of the schools. On the other hand, barriers, as such, are bad, and are defensible only as a protection against less competent teachers. Alto-

⁹ *Ibid.*, chap. 27, sec. 450 a.

¹⁰ See footnote 5, Chapter I.

gether too often, though, barriers which are claimed to give such protection are in reality made to serve as a means of keeping capable teachers out. Any protective tariff levied against capacity and training is inimical to the best interests of both the school and the teachers.

As for the poor teacher, of whom we are so afraid, the best method of restricting his or her freedom of motion is to raise the standards for entering the work so as to eliminate such persons entirely from the teaching profession. Such an elimination would be in the interests of the schools and of the teachers themselves. One of the chief reasons why the wages of teachers are so low in some states, as for example Indiana and Illinois, is that the number of opportunities for taking the examinations are so frequent, and the standards for entering the work of teaching are so low, that even these low wages pay a good return, economically speaking, on the investment necessary to begin the work, which is only a common-school education and a little private study. On the other hand, one of the main reasons why wages in certain other states are high, as for example California, is that the requirements for a certificate to teach are so high (a high-school education or its equivalent, or graduation from a good normal school), and the number of opportunities for entering by the examination method are so limited (only one examination per year), that only under high wages would teaching be a sufficiently economically profitable investment to attract enough persons to fill the schools of the state. Even as it is, almost every county in California is suffering from a shortage of teachers, and this shortage can be overcome in only one of two ways—either lower the standards of admission and thus create a surplus of teachers at once, or raise salaries still further and attract enough additional young men and women to the work because of its being made more profitable than other occupations to which these young people would otherwise have gone.¹¹

¹¹ *Resolutions of the California Teachers' Association, 1905, No. 6.* It would be possible to fill all the schools of the state at a monthly wage of \$25, provided we were willing to take the class of candy-store and typewriter girls who can be obtained for such wages. A shortage of teachers is an economic problem rather than an educational one.

III. STEPS TENDING TO BREAK DOWN THE STRICT COUNTY SYSTEM

With the extension of professional training among teachers and the development of a professional body of teachers in a state, there usually has been an increasing insistence upon the extension of the validity of certificates, on the raising of standards, and on the elimination of all unnecessary barriers to freedom of movement within the state; and this has produced visible results in a number of different directions. While the steps in the process have not been taken in the same order in all the states, and different lines of attack have been made in different states, the steps in the evolution of a better and broader system of certification within a state may be arranged, nevertheless, in about the following order:

1. Permission to have papers written in one county forwarded to another county for grading. This is one of the first steps, and has been used by a number of states which have since passed on to some more general form of inter-county recognition or state certification. We find it still in existence in a number of states, as for example Michigan, where the law provides that "any commissioner may, upon the request of any holder of a second-grade certificate, send the papers written by such person, properly certified and under seal, to the county board of school examiners of any other county for their examination, and such board of school examiners may, at their discretion, receive such papers, and, if they accept them, shall treat them in the same manner as if written at a public examination in their own county."¹²

2. Uniform examination questions furnished to all counties by the state, the papers, however, being graded by the superintendents or school examiners in the different counties. The effect of this has been to introduce a certain uniformity in the examination of all teachers, and in general it has paved the way for future reforms. In a few states this plan, begun voluntarily by the state board of education, and the use of the questions prepared being at first a purely optional matter with the counties, has proved so acceptable that the furnishing of the questions and their use has been made

¹² Michigan: *Compiled Laws of 1897*, sec. 4812, div. 5, as amended by *Session Laws of 1901*, Act 99.

compulsory by subsequent legislative enactment.¹³ The resulting uniformity has naturally prepared the way for an optional and later for a compulsory inter-county recognition of teachers' certificates. Enactments giving the state superintendent or the state board of education a supervisory control¹⁴ over all county examinations have frequently followed.

3. Forwarding of papers to the state superintendent for indorsement, thus giving them more general validity. This step marks the beginnings both of inter-county recognition of certificates and of general state certification instead of local certification. Under it an applicant has the right to request that the examination papers which he has written in one county shall be sent to the office of the state superintendent of public instruction for inspection and indorse-

¹³ Indiana is a good case in point. For some years the state board of education furnished the questions, voluntarily, some counties using them and some not; but their use has now been made compulsory for all counties.

¹⁴ A few examples of such legislation may be cited.

a) In Arkansas the law makes it the duty of the state superintendent of public instruction to furnish questions to the counties for the examination of teachers, and to prescribe the form of certificates to be issued by the county examiners.—*Digest of the Laws Relating to Free Schools*, secs. 7510, 7535.

b) In Idaho it is made the duty of the state superintendent to prepare "all examinations to be used by the county superintendent of the several counties of the state in the examination of applicants for teachers' certificates," and to "prescribe the rules and regulations for the conducting of all such examinations."—Idaho: *Political Code of 1901*, chap. 35, sec. 1014.

c) In Indiana any applicant, and in Michigan any applicant for a first-grade license, may appeal from the decision of the county superintendent and have his papers sent to the state superintendent for inspection and review.—Indiana: *Session Laws, 1903*, p. 271; act approved March 9, 1903, sec. 4; Michigan: *Compiled Laws of 1897*, sec. 4813, div. 6.

d) In Oregon the state board of education prepares all questions for the county examinations, prescribes the general form of all certificates, issues rules and regulations governing the granting of the different grades of certificates, and county boards of examination must accept in full any grades made by the applicant in any examination held under the authority of the state board of examiners.—*Compiled School Laws of Oregon, 1903*, Art. III, sec. 20, div. 7, 7 e.

e) In Utah the state board of education is required to prepare all questions for the county examinations, is empowered to make suggestions as to their use, and is given authority to prescribe such "rules and regulations as shall tend to secure uniform examinations in the different counties of the state."—Utah: *Session Laws of 1901*, chap. 94, sec. 1.

ment, and, if they are approved, the applicant's certificate, previously granted for one county, is now made valid by state indorsement in some other county, or possibly in any county in the state, and must be accepted by local authorities as a valid certificate to teach. Michigan,¹⁶ Nevada,¹⁶ and Indiana¹⁷ offer us good illustrations of this stage of the evolution of the inter-county recognition certificates. Each state, in the order given, represents a little more advanced step than the one preceding it. In Michigan the certificate is validated only for a particular county. In Nevada a certificate may be validated for one or more counties. In Indiana a certificate is validated for any county in the state.

4. The fourth step in the breaking-down of the barriers of the strict county system is that of general inter-county recognition of teachers' certificates. This has taken different forms in different states, and extends from optional to compulsory recognition, and from the recognition of only the higher grade of county certificate to the recognition of all certificates issued. Optional recognition of only the highest-grade certificate is the beginning of the process, and the compulsory recognition of all certificates issued is the

¹⁶ The Michigan law provides that, if a first-grade certificate in any county is "approved and countersigned by the superintendent of public instruction, and a copy filed with the county commissioner of the county in which the holder of said certificate desires to teach," then such certificate shall become a valid first-grade certificate for such county.—Michigan: *Compiled Laws of 1897*, sec. 4813, div. 6.

¹⁷ The Nevada law provides that "the state board of education shall not indorse county certificates submitted to them for such purpose for use in other counties until the state superintendent is satisfied from an inspection of the examination papers of the person holding such certificate that such indorsement should be made. The county superintendent who recommends to the state board of education that a certificate should be indorsed or made good for other counties than his own must forward to the state superintendent, with such recommendation, the original papers of the applicant, with the gradings given in both written and oral work.—*Compiled School Laws of Nevada, 1905*, Art. IX, sec. 4, p. 26.

¹⁸ In Indiana a recent law provides that "applicants shall have the right to elect (when taking the county examination) to have their manuscripts sent to the state superintendent of public instruction for examination, which license shall not be confined to any particular county, but be taken as qualifying the person to whom granted, as long as in force to teach anywhere in the state."—Indiana *Session Laws of 1899*, p. 488; act approved March 6, 1899, sec. 1.

ultimate conclusion, though this latter usually is not reached until the lower grades of certificates have been eliminated. Oklahoma and Oregon¹⁹ are examples of the optional recognition of only higher grades of certificates; Minnesota,²⁰ Montana,²¹ and Pennsylvania²² are examples of the compulsory recognition of the highest grades of certificates; California²³ is an example of the optional recognition of all certificates; Idaho²⁴ is an example of the compulsory recognition of all but the very lowest (one-year) certificates; and Arkansas²⁵ is an example of the compulsory recognition of certificates.

¹⁹ "The county superintendent may indorse unexpired first-grade certificates issued in other counties, on payment of a fee of one dollar, which certificate shall thereby be valid in the county in which said indorsement is made for unexpired term of the certificate."—*Public Statutes of Oklahoma*, 1903, c. 73, Art. V, sec. 1, as amended in 1903, sec. 7.

²⁰ A similar provision is to be found in the *Oregon School Laws*, Art. sec. 20, div. 7 a.

²¹ "A complete first-grade certificate," with proper certifications as to scholarship, skill in teaching, and moral character, "shall be valid in any county in state." Complete second-grade certificates, similarly certified, "may be valid in any county by the indorsement of the county superintendent."—*Minnesota Acts of 1899*, chap. 101, sec. 3, as amended by *Acts of 1901*, chap. 160, sec.

²² "A professional or first-grade certificate shall be valid in any county in the state upon indorsement as hereinafter provided" (payment of fee).—*Montana Public Statutes*, Title III, chap. 6, Art. XIII, sec. 1912.

²³ In Pennsylvania a permanent certificate in any county "shall also entitle the holder to teach one year in any other county, city, or borough in this Commonwealth, without re-examination, at the end of which time it may be indorsed by the proper authority, when it becomes permanent for that county."—*Pennsylvania School Laws*, sec. 297, Act of June 23, 1883.

²⁴ "County boards of education may, without examination, grant certificates as follows: (b) grammar-school certificates (the only elementary-school certificate issued) to the holders of: (4) grammar-school or grammar-grade certificates of any county, or city and county, in California."—*California Political Code*, sec. 1775.

²⁵ "First-grade, second-grade, and primary certificates shall be good in any county in the state for the same period (as in the county where granted) by holder thereof filing a certified copy of the same with the county superintendent of the county in which he desires to teach."—*Idaho Political Code* of 1901, chap. 36, sec. 1029.

²⁶ The Arkansas provision is very ingenious. In an "Act to improve

Other forces tending to break down the strict county system, and to establish a more general and more liberal system of certification for the teachers of a state, are (*a*) the establishment and development of co-ordinate systems of state examinations and state certification, issuing certificates of wider validity; (*b*) the increase in educational and professional standards which has led to the abolition of the lower grades of county certificates; (*c*) the recognition of normal-school and university diplomas; and (*d*) the growing force of professional opinion as the teaching profession has come to express itself more forcibly than formerly on questions of public educational policy.

The effect of these various forces, working either singly or in combination, has been so to break down the strict county system that it exists today in but a small number of states, and probably will ultimately disappear altogether, as it should. Regardless of what may be shown to be true of certain particular counties, it is nevertheless an unfortunate condition of affairs when the schools of each county in a state are protected from the teachers of every other county in the state by a system of artificial barriers which place the entire emphasis on a written examination, and neglect the much more important evidence of professional training for the work or successful experience as a teacher. The freedom of movement of a good teacher ought not to be limited in such a manner, and he

character of the teaching in the State of Arkansas," approved May 6, 1905, the following provision is made:

"Sec. 1. It shall be the duty of the county examiners of the various counties of the state of Arkansas to hold one or more teachers' institutes for white teachers and one for negroes of not less than one week within the month of June in each year.

"Sec. 4. It shall be the duty of the teachers holding license to teach in the public schools of the state of Arkansas to attend said institutes and to do the work outlined by the superintendent of public instruction.

"Sec. 5. The county examiner, upon finding that the teachers in attendance are entitled to the grade of license they hold, shall indorse the same, and said indorsement shall have the effect of extending said license from the time of its expiration for the time of which it was originally issued; *provided*, that no third-grade license shall be indorsed more than once and no second-grade license shall be indorsed more than twice, and that said indorsement may be made even though the original license were issued in some other county in the state."

should not be subjected to the petty annoyance of an examination which he may at any time fail to pass, merely because the people of an adjoining county want him to cross the line and teach their school. After he has passed sufficient examinations to attain a high-grade certificate, and after he has demonstrated his professional ability by actual work in the schoolroom, his freedom of movement ought not to be questioned. Nearly all argument against such freedom is based on the case of the poor teacher rather than the good teacher. A much better method is to make conditions such as they should be for the good teacher, and then proceed to eliminate the poor teacher by raising educational and professional standards. The strict county system in reality tends to protect the weak by shielding them from the open competition of the strong.

IV. CITY CERTIFICATES

These must be classed as another form of local certificates. They are found to be in a number of states in either one of two forms. Either the cities are expressly directed or permitted to examine and certificate their own teachers, or the cities, while required to accept the regular county or state certificates, provide for an extra and supplemental examination of an educational nature as a basis for selecting the teachers who are to teach in the city.

The first form is found in Alabama, for example, where the cities of two thousand or more inhabitants have kept their independence and are allowed to examine and certificate their own teachers, while all other teachers are required to pass the state examinations; and also in some of our larger cities, as for example New York, where the city determines its own standards and examines and certifies all of its teachers.

The second form may be illustrated by California, where the courts have asserted the supremacy of the state in education, and have compelled the cities to accept any valid state or county certificate, whether granted by this state or properly accredited from another state.²⁶ This the cities do; but one city, San Francisco, has

²⁶ The California School Law does provide for city boards of examination and city certification (*Political Code*, secs. 1787-93), and these sections are continuously reprinted in editions of the School Law. The courts, however, have long since declared them to be unconstitutional, and city examinations as such have not been held in the state for many years.

superimposed on top of this an educational examination of its own, using it as a means of selecting its future teachers from the great number of properly certificated teachers who each year apply. The possession of a legal certificate to teach, and normal training or good teaching experience, are made a prerequisite for admission to this examination, which is both personal and educational. From the combined markings of all the judges a numbered list of eligible applicants is prepared, and from this list nominations and elections are made as required.

In states where the first form exists the city examination and certification stands in co-ordinate relation with the county or state examining and certificating system. The history of the development of city certificates shows clearly that they have been evolved partly from a desire to secure higher educational standards than the state examinations insured, and partly from a spirit of narrow provincialism. In a large city, such as New York or Chicago, there still may be good reasons for maintaining a separate city examination machinery and allowing the city to examine and certificate the teachers for its schools. If the educational standards of the state are low, as in Illinois, there is more warrant for a separate examination system for a large city than where the standards of the state are high, as in California.

In the case of small cities, though, the provision for city certification is one of very doubtful value, and the experience of most cities is against it. The examination itself is a useless waste of energy on the part of the city authorities, it frequently subjects them to undesirable local pressure, it raises an unnecessary barrier to the freedom of motion of good teachers, and its tendency is to limit competition to the home product, which in turn results in an in-breeding process, low standards, and low wages; and these in turn more than counterbalance any gain, real or imagined, which the smaller city derives from preparing the questions for and marking the papers of its applicants. It is a much better plan for all, except perhaps the largest cities, or cities in states where the standards are notoriously low, to accept the regular state or county certificates, and to require all candidates for a position to secure a certain grade of local certificate before being considered by the city authorities. The lower grades of certificate need not be accepted.

Cities can easily require all candidates to hold a first-grade certificate as a prerequisite to election to a position. If this is not sufficient to meet the requirements of any city, then an additional examination in professional or additional subject-matter subjects may be superimposed. A minimum educational requirement, such as a high-school education for a position in the elementary schools and a college education for a position in the high school, may also be required. The city, however, accepts what the state provides as far as it goes. State requirements are always minimum requirements, and any community ought to be free to go as far beyond them as it desires and is willing to pay for. So far as these minimum requirements go, however, they ought to be accepted by all.

The advantages of such a plan are obvious, and the tendency is certainly in this direction. As state standards have been improved, many of our cities have given up their local examination system and accepted the state or county system in its stead,²⁷ and such a tendency ought to be encouraged in all legislation on the subject. If state standards are low, then the cities owe it as a duty to the state to lend their efforts toward improving standards.

²⁷ This tendency is well illustrated by the state of New York, where the cities have gradually given up their local examination system and city certification, and accepted the state certification instead. Only a few cities now retain the city examination.

CHAPTER III

LOCAL EXAMINATION SYSTEMS, CONTINUED: EXAMINATION SUBJECTS AND GRADES OF CERTIFICATES

I. EXAMINATION SUBJECTS

In almost all of the states having local town or county examination systems for the granting of teachers' certificates, or a state examining system controlling all certification, as in Alabama, the school law enumerates the general requirements and prerequisites to being admitted to the examinations, and specifically enumerates the subjects upon which the applicants for each grade of certificates must pass. Frequently the minimum and average passing percentages are enumerated as well for each grade of certificate issued.

In nearly all of our states the subject-matter test is low. To show this I have compiled a table showing the educational requirements in the different states for those desiring the first three grades of certificates issued by the county or other local authorities. In enumerating the subjects required for a higher certificate I have included all those required for the lower certificates when the holding of such is a prerequisite to the granting of a higher certificate, or when the passing of an examination on such subjects, or the grades obtained in an examination for a lower certificate, are accepted as part of those required for the higher certificate. Hence the table represents not only the subjects upon which an applicant is required to pass at the time of the examination for the second- or first-grade certificate, but the total academic and professional requirement which he is obliged to satisfy in obtaining the highest certificate granted by the local examining authorities. Put in another way, the tables include the branches upon which an applicant would be obliged to be examined were it possible for him, on entering the teaching profession, to become a candidate for the highest grade of local certificate granted by the examining authorities.

An examination of the following table shows at once the low educational standards which prevail throughout the United States in the certification of teachers. This may be due to financial considera-

tions; it may be due to lack of professional standards and zeal; it may be due to general indifference; or it may be due to a combina-

TABLE III
EXAMINATION REQUIREMENTS FOR THE FIRST THREE GRADES OF
COUNTY CERTIFICATES

	First Grade	Second Grade	Third Grade
Number of states tabulated ¹	37	32	28
Number of states specifically requiring			
1. The common-school staples:			
Reading.....	37	32	28
Grammar.....	37	32	28
Geography.....	37	32	28
Orthography.....	37	32	28
Physiology and hygiene.....	36	30	25
Arithmetic.....	35	31	27
Penmanship.....	35	30	26
History of the United States.....	35	29	26
Civics.....	25	18	13
2. Supplemental common-school subjects:			
State history.....	10	10	0
English composition.....	9	9	4
Bookkeeping.....	6	4	1
Mental arithmetic.....	5	5	5
Drawing.....	4	4	4
Music.....	4	4	1
State constitution.....	4	4	4
Language lessons.....	3	3	1
Current events.....	3	3	2
Physical culture.....	2	1	1
Nature-study.....	1	1	0
Agriculture.....	1	1	0
3. High-school subjects:			
Algebra.....	23	5	1
Physics.....	16	1	1
Geometry.....	11	1	0
Physical geography.....	10	5	0
Literature.....	9	1	1
Rhetoric.....	3	0	0
General history.....	4	0	0
Economics.....	3	0	0
English history.....	1	1	0
Natural sciences.....	2	0	0
Botany.....	1	0	0
Chemistry.....	1	1	1
4. Pedagogical subjects:			
Theory and art of teaching.....	28	25	20
School law.....	10	7	3
Psychology.....	1	0	0
History of education.....	1	0	0

¹ In a few states there are no local county or town certificates, and in a few other states the school law does not mention the subjects of examination, leaving this to the state authorities to prescribe.

tion of all of these; but in any case it is none the less regrettable. In more than half the states of the Union it is possible to secure a teacher's certificate and become a teacher with no other educational equipment than a knowledge of the common-school subjects—the merest rudiments of an education. In about one-fourth of the states no examination upon topics of a professional nature is required, and the prospective teacher, apparently, is not expected to know anything as to the professional side of his or her calling.

This table also shows that practically all of the emphasis for the lower grades of certificates and almost all for the higher grades, is placed on the fundamental studies of the common-school course.² Little emphasis is placed, for any grade of certificate, on those more recent additions to our range of elementary instruction which we have come to value so highly. But four states out of thirty-seven require drawing or music, but two states require any knowledge whatever of physical training, and but one state requires any work in nature-study or the elements of physics and chemistry.

We are constantly emphasizing the importance of nature-study and agriculture, yet it is almost impossible to teach these subjects in any adequate manner today because our teachers, as a body, are ignorant of the very fundamentals of the modern sciences.

To be sure, music, drawing, physical training, and nature-study are at present largely directed and taught by special teachers, but unless some emphasis is placed on teachers studying these subjects, they will always continue to be so taught. Few things, after broader general culture and an increased pedagogical insight, could be more desirable of teachers than that all should eventually come to be able to give satisfactory instruction in music, drawing, physical training, and nature-study.

² In a number of states the law specifically states that the applicants for the lower grades of certificates shall be examined only in "the common-school branches" or in "the branches of study taught in the common schools," or the subjects for the examination as enumerated in the law are merely "the common-school branches," plus perhaps a little "theory and practice of teaching." See for example: *Arkansas Statutes*, sec. 7577; *Illinois School Law*, Art. VII, sec. 3; *Indiana School Law*, 1903 Revision, sec. 81, p. 75; *Iowa Code*, sec. 2736; *Kentucky Common School Laws*, Art. XI, sec. 133; *New Hampshire Session Laws of 1895*, chap. 49, sec. 3; *Maine Statutes*, sec. 105.

When one examines the table with reference to high-school subjects, it is seen that it is possible to obtain a first-grade certificate in one-third of the states without knowing anything about a single high-school subject, and in two-thirds of the states without knowing any high-school subject except algebra. Of the various sciences, a knowledge of the elements of which underlies so much of our modern life and a knowledge of which must underlie all really valuable work in nature-study or agriculture, it is seen that but little is required. Sixteen states require some knowledge of physics for a first-grade certificate, and ten states require physical geography; but, excepting these two subjects, practically nothing in science is required of the applicant for the highest grade of local certificate by any state. Of history, other than that of our own country, a knowledge of which has a high cultural and some practical value for the teacher, again almost nothing is required for the highest grade of local certificate. One state requires English history for the second- and first-grade certificates, and four states require general history for the first-grade certificate only. Three states require economics, and nine require English literature for the first-grade certificate.

Of strictly professional subjects, about three-fourths of the states require an examination in the theory and practice of teaching for each grade of certificate, while the remaining one-fourth make no professional requirement whatever. A small percentage of the states require school law; one state requires psychology, and one the history of education, for the first-grade certificate only. Aside from these no other educational requirements are made.

Surely it is not too much to ask that all teachers desiring even the lowest grade of certificate issued in any state should pass a creditable examination on the fundamental studies of the common school, on the theory and art of instruction, and on those portions of the school law which deal with the relations of the teacher to the patrons and the school authorities. It would also be well if at least the elements of drawing, music, and physical geography could be added to these minimum requirements. To pass to the other end of the scale, it certainly ought not to be possible, in this day of expanding knowledge and general enlightenment, for a teacher to obtain the highest first-grade certificate in any county

without giving evidence of possessing some real knowledge of the more important high-school subjects. Algebra, general and English history, English literature, physical geography, and at least one science, is a minimum that might be expected. As fast as is possible, every state should move toward making this minimum an absolute requirement for any grade of certificate to be issued. This must be accomplished by gradually cutting off the lower grades of certificate. A first-grade certificate ought to place a premium upon obtaining a high-school education, or its equivalent by private study, and it ought not to be given alone on the basis of a certain number of years of experience as a teacher and the obtaining of high percentages in a new examination, covering those common-school branches on which the candidate originally passed and which he has been teaching continuously to pupils. The teacher who cannot rise above this level ought not to receive a first-grade certificate, and ultimately must be eliminated entirely from the work of teaching.

II. GRADES OF CERTIFICATES

In the grades of certificates issued by the local authorities the number ranges from one to four, three being the most common number and being used by more than one-half of the states issuing graded local certificates. Six states issue as many as four grades, while California has reduced the number of certificates for elementary schools to one by gradually raising the educational requirements for admission to the work of teaching, and thus cutting off and eliminating all of the lower grades of certificates. In this state admission to the teaching profession requires either a normal-school training or a three-day written examination over subjects which practically require that the applicant shall have had a high-school education to pass.*

In about one-half of the states granting three or more grades of

* "County boards of education may, on examination, grant certificates as follows: Grammar-school certificates: to those who have passed a satisfactory examination in the following studies: reading, English grammar and advanced composition, English and American literature, orthography and defining, penmanship, drawing, vocal music, bookkeeping, arithmetic, algebra to quadratics, plane geometry, geography (physical, political, and industrial), elementary physics, physiology and hygiene, history of the United States and civil government, general history, school law, and methods of teaching."—*California Political Code*, sec. 1772.

certificates, an examination in additional subjects is not required to secure a second-grade certificate instead of a third-grade certificate, and in about one-third of the states granting two or more grades of certificates an examination in additional subjects is not required to secure a first-grade instead of a second-grade certificate. In these states the basis for granting the higher grade of certificate is, not additional preparation, but higher percentages made in the examinations.⁴ About two-thirds of the states impose a teaching experience requirement before granting the highest grade or grades of local certificate.⁵

Though most of the states provide for two or more grades of certificates, it can hardly be said that we have a graded system of certification, leading from lower to higher certificates, except in those states where additional education or examinations are required for the higher grades. This is the case in only about one-half of the states, and in many of these the system is imperfect. Kentucky,⁶ for example, with its grades of certificates based wholly on percentages, cannot be said to have a graded system of certification in any real sense of the term. Nebraska⁷ and Missouri,⁸ on the other hand, have a real graded system.

⁴ Kentucky is a good example of this. The law here provides that three grades of county certificates shall be issued, based on the following grades: first-class certificate: average, 85 per cent. or over; minimum grade in any subject, 65 per cent.; second-class certificate: average, 75 per cent.; minimum grade, 55 per cent.; third-class certificate: average, 65 per cent.; minimum grade 50 per cent.—*School Law of Kentucky*, 1904 edition, sec. 133, p. 100.

⁵ Minnesota is an example of this class of states, the law providing that "no teacher shall receive a complete first-grade or second-grade certificate who has not had successful experience in teaching for at least eight months for a first-grade, and five months for a second-grade."—Minnesota: *Acts of 1901*, chap. 160, sec. 1; *School Law*, sec. 265.

⁶ See footnote 4 above.

⁷ In this state the law (*School Law of Nebraska*, Subdiv. 9 a, secs. 7, 8, 9) establishes the following standards for the three grades of county certificates:

1. For the third-grade certificate: "Approved moral character and a satisfactory examination in orthography, reading, penmanship, geography, arithmetic,

⁸ Missouri has a meritorious graded system which incorporates the main features of both the Kentucky and Nebraska plans. Additional subjects are required for each higher grade of certificate (three grades are issued in Nebraska), and in addition the law requires that "to obtain a first-grade certif-

In a number of states the lowest grade of certificate is regarded merely as a trial certificate. As such it may perhaps serve a useful purpose. Much will depend upon the attitude assumed toward it by the local certificating authorities. In far too many cases, however, it is a certificate held by the weakest members of the teaching ranks—the immature, the poorly prepared, and the misfits of the teaching profession. In some states this lowest grade of certificate is issued for as short a period as six months, and in at least one state, if the certificate expires before the end of the term, the teacher may continue and finish the term regardless of the lack of a certificate. In a number of states as many as two or three such trial certificates may be granted to the same person, and in a few states there is no express legal prohibition against the granting of any physiology and hygiene, English composition, English grammar, and United States history." (Sec. 9.)

2. For the second-grade certificate: All subjects required for a third-grade, and in addition "civil government, bookkeeping, blackboard drawing, theory and art of teaching, and the elements of agriculture, including a fair knowledge of the structure and habits of the common plants, insects, birds, and quadrupeds." After September 1, 1907, one or more years of successful experience as a teacher, or "at least eight weeks' normal training in a college or university, normal school of approved standing in this or in another state, or in a state junior normal school of Nebraska, or in a high school of Nebraska approved by the state superintendent of public instruction as being equipped to give such normal training," will be required in addition. (Sec. 8.)

3. For the first-grade certificate: All subjects required for the second-grade, and in addition "algebra, botany, geometry, and physics;" and after September 1, 1907, the same additional requirements as for the second-grade except that the minimum period in such training-schools shall be twelve weeks instead of eight. (Sec. 7.)

The Nebraska law contains no express provision whereby the possession of a live certificate of any lower grade shall absolve the applicant for a higher-grade certificate from an examination in the subjects represented by the live lower-grade certificate, as is found in the law of a few states, but with this added provision the Nebraska standards for a graded series of county certificates would be among the best of any state.

cate, applicants shall have had one year's experience in teaching, and shall maintain an average grade of 90 per cent.; to obtain a second-grade, an average grade of 85 per cent.; and to obtain a third-grade, an average grade of 80 per cent.; but no certificate of any grade will be granted to any applicant whose grade in any branch falls below 60 per cent."—*Missouri Revised Statutes, 1899, sec. 9958*, as amended by *Session Acts of 1901*.

number of such certificates to any applicant. Michigan, for example, grants four grades of teachers' certificates and permits three issued in any county of the fourth or lowest grade to any applicant.⁹ When this number is exhausted, the candidate can move over the line to the next county and begin the process over again. Indiana, another state which grants four grades of certificates, prohibits the renewal of the lowest grade¹⁰ (good for but six months), though there is no prohibition against the granting of any number of consecutive third-grade (one-year) certificates. In Arkansas, a state granting a third-grade certificate valid for six months only, we find the unique provision in the law that, if a teacher's "license expires by limitation during any school, such expiration shall not have the effect to interrupt his school, or to debar his claim . . . for the payment of wages."¹¹ Bad as this provision may at first seem, it is only simple justice. If the teacher was prepared to begin the school and teach it for the larger part of the term, he is certainly prepared to finish the term. What should be done is to require the applicant to come up to at least the standard set for the twelve-months' certificate, not to certificate him at all.

In Minnesota¹² and South Dakota¹³ the county superintendent has power, "when he deems it necessary, to issue a third grade certificate on his own examination, for a term of one year;" though such certificate, in each state, must designate the particular school district in which it is to be valid, it is not renewable without a new examination, and not more than two such can be granted to the same person in any county. In South Dakota the examination for the third-grade certificate must be given on the subjects required for a second-grade certificate. On the other hand, this third-grade cer-

⁹ "Not more than three third-grade certificates of Class B shall be granted to the same person in any county."—*Michigan Compiled Statutes of 1897*, § 4813, as amended by *Session Laws of 1901*, Act 99.

¹⁰ "No person who hereafter receives a six-months' license in any county shall be again thereafter licensed for said county unless he obtains a grade which shall entitle him to receive at least a twelve-months' license."—*Sch. Law of Indiana*, 1903 edition, p. 75.

¹¹ *Arkansas Statutes*, sec. 7649.

¹² Minnesota: *Session Laws of 1899*, chap. 101, sec. 3, as amended by *Law of 1901*, chap. 160, sec. 1.

¹³ South Dakota: *Revised Code of 1903*, sec. 2294.

tificate may be granted to applicants only seventeen years old, while for the other certificates the applicants must be eighteen years old. This certainly is a bad provision. In Kentucky¹⁴ a third-grade certificate is granted for one year, but only one such certificate may be granted to the same person in any county, and it has recently been provided¹⁵ that it shall not be valid for teaching "in any district reporting fifty-five or more pupil (census) children." This virtually limits it to schools having an enrolment of thirty or less children. In Nebraska but one third-grade certificate may be issued to any applicant, it is not valid except in the county where issued, and is valid "for such term as the county superintendent may deem best, but not exceeding one year."¹⁶ In Idaho, where three grades of certificates are issued, a third-grade cannot be granted to the same person a second time.¹⁷

The general undesirability of these low-grade certificates may be inferred from these limitations, and from the fact that a number of states have abandoned such certificates altogether. Similar citations might be made to the laws of many other states. Almost everywhere the third-grade certificate, or the third- and fourth-grades in certain states, are certificates the existence of which are defensible only on the ground that it is necessary to grant such certificates under the low-wage system which prevails in order to provide a sufficient number of teachers to teach the schools. Such low-grade and low-standard certificates do not provide the schools with the right kind of teachers, and the reason for continuing their existence is economic rather than pedagogical. What the teaching profession should demand is that such low-grade certificates be eliminated without further delay, and that the places of such teachers be taken by teachers of broader education and culture. That this might result in a temporary shortage of teachers is nothing with which the teaching profession need to concern itself, as that is a question for the taxpayers and not the teachers to handle. There will be no serious shortage of teachers in any state under reasonably high standards, if teachers are once paid a yearly salary commen-

¹⁴ Kentucky: *Common School Laws*, 1904, pp. 99, 100.

¹⁵ This took effect on and after July 1, 1894. (*Kentucky Acts of 1893*.)

¹⁶ *School Laws of Nebraska*, subdiv. 9 a, sec. 4, div. 3.

¹⁷ Idaho: *Political Code*, chap. 36, sec. 1028.

surate with the training and ability demanded by the work, and if the conditions of tenure are made reasonably secure. One of the most important services which the teaching profession could render in many states, after the work of instruction, would be the starting of a movement looking toward the entire elimination of these low-standard third- and fourth-grade certificates, and the raising of the educational and professional requirements for the first- and second-grade certificates.

This process of elimination is taking place slowly at present in many parts of the United States. The case of California¹⁸ has been mentioned. Nevada¹⁹ has also begun a similar process by recently providing that the primary county certificate (second-grade) shall not be renewable after the year 1897. In Minnesota and South Dakota the elimination of the third-grade certificate is in process of accomplishment.²⁰ In North Dakota a recent amendment to the Statutes²¹ provides that "after January 1, 1908, county certificates shall be of two grades only," the third-grade, or one-year certificate, being entirely eliminated. In Delaware²² the provisional one-year certificate, which has been the third-grade certificate of that state, was entirely abolished in 1901. In states where the inter-county recognition of certificates is common there is a quite general refusal to recognize a third- or fourth-grade certificate, and in states where certificates are renewable without examination at their expiration, third-grade certificates are almost never so renewable. The movement looking toward the entire abolition of these low-grade certificates is a good movement and it ought to be encouraged. There is no pedagogical reason for their retention, and economic reasons should be referred to those to whom they belong.

¹⁸ This was accomplished in 1901.

¹⁹ *School Law of Nevada*, 1905 edition, p. 27, sec. 7.

²⁰ See footnotes 12 and 13 of this chapter.

²¹ *North Dakota Statutes*, sec. 741.

²² Delaware: *Session Laws of 1901*, chap. 113.

CHAPTER IV

LOCAL EXAMINATION SYSTEMS, CONTINUED: VALIDITY OF CERTIFICATES: NUMBER OF EXAMINATIONS: SPECIAL EXAMINATIONS AND TEMPORARY CERTIFICATES: FEES: RENEWALS

I. VALIDITY OF CERTIFICATES

The length of time for which the different grades of certificates are valid varies in the different states. One year for third-grade, two years for second-grade, and three years for first-grade are quite common periods.¹ In Michigan, Kentucky, and Texas² the first-grade certificate is valid for four years, the second for either three or two years, and the lowest for one year. In Illinois, Iowa, and North Carolina but two grades³ are granted, and these are good for but one and two years respectively. In a few states the period is much longer, as for example Delaware,⁴ where the validity of the first-grade certificate was raised, in 1901, from two up to five years, and that of the second-grade certificate from one up to two years; in Alabama,⁵ where first-grade certificates are valid for six years, second-grade certificates for four years, and third-grade certificates for two years; in Minnesota,⁶ where the first-grade certificates are

¹ Indiana, Missouri, and Nebraska are examples of this. In Nebraska the certificates may be valid for a still shorter time, as the law gives the county superintendent authority to terminate a three-year first-grade certificate at the end of two years, a two-year second-grade certificate at the end of one year, and a third-grade certificate, nominally valid for one year, may be terminated at any time, "at the discretion of the county superintendent of the county in which the holder of such certificate shall teach."—*School Laws of Nebraska*, subdiv. 9 a, sec. 4, divs. 1-3.

² Michigan: *Compiled Laws*, sec. 4813, div. 6; *Kentucky Common School Laws*, 1904, edition, sec. 133; *Texas School Laws*, 1905 edition, sec. 85.

³ *School Laws of Illinois*, Art. VII, sec. 3; *Iowa Code*, sec. 2737; *North Carolina Code*, sec. 4162.

⁴ *Delaware Session Laws of 1901*, chap. 113.

⁵ "An Act to establish a uniform system for the examination and licensing of teachers of the public schools of Alabama;" approved February 10, 1899, sec. 15.

⁶ Minnesota: *Session Laws of 1899*, chap. 101, sec. 1; *School Laws*, sec. 263.

valid for five years, and the second-grade certificates for two years and in California,⁷ where the one elementary-school certificate granted is valid for six years, and is renewable. In Connecticut and Massachusetts the certificate granted by the local school committee is usually valid as long as the teacher remains in the school.

II. NUMBER OF EXAMINATIONS

Quite generally, in recent years, there has been a tendency to reduce the number of examinations given each year so as not to keep the examination door open too continuously. Not many years ago it was a much more general custom than it is today to provide a monthly examination for teachers' certificates, and to give an applicant as many trials as he had dollars to put up on the venture. It was even possible in certain states, and still remains so in a very few, for a candidate to store up grades on subjects in which he did not pass, and thus finally secure a certificate by passing on a part of the list at each examination. This usually entitled him to the lowest grade of certificate issued, and enabled him to go out and compete for schools at whatever "wages" the district trustee would pay.

Much of this has been abolished within recent years, and there is today a tendency in most states, though often not very well marked as yet, to reduce the number and to minimize the importance of the examination as a means of recruiting the ranks of the teaching profession. Indiana has recently reduced the number of examinations from twelve to eight per year,⁸ and could still further reduce the number a half to three-fourths with advantage. Iowa and Nebraska⁹ are examples of states which keep the examination from going twelve months in the year, and the only limit to the persistence of the applicant's opportunity to try for the lowest grade of certificate is his dollars in Nebraska and his dollar-and-a-halfs in Iowa. Texas holds five examinations each year. Quarterly examinations are very common (after-biennial being the most frequent of any number)—Arizona, Arkansas, Illinois, Kentucky, Montana, and North Dakota belonging to this class. California and Idaho have reduc-

⁷ *California Political Code*, sec. 1771, divs. 3 and 4.

⁸ *School Law of Indiana*, 1903 edition, p. 75, sec. 81.

⁹ *Iowa Statutes*, sec. 2735. *Nebraska School Laws*, subdiv. 9 a, sec. 11.

¹⁰ *School Law of Texas*, 1905 edition, sec. 76.

the number of examinations still further and provide but one each year.

While perhaps it is not desirable to discriminate among applicants with reference to the number of opportunities anyone may have to try the examinations when offered, it certainly is desirable to limit the number of opportunities to try the examinations each year for all. In proportion as the professional standards of the state are advanced, and as normal- and university-trained teachers increase in number, the examination ought to be decreased in importance. At its very best, it is a very imperfect means of testing the ability of any applicant to teach a school, as everyone who has had anything to do with the professional training of teachers knows. Those who stand highest in the examinations not infrequently make poor teachers, and the opposite is very often true. At best a written examination can test only memory of principles and certain academic knowledge, and is in no way a test of possible teaching skill or adaptability to the work of a teacher. A high degree of native retentiveness for facts rather than the ability to teach is what a written examination really searches out, and it not infrequently happens that a well-trained teacher fails to pass a required examination, or that some immature and unfit person makes a high average. Only a few years ago an associate superintendent of New York City, who had been appointed because of peculiar ability and fitness for the position, failed to pass the examination required before taking up the work, while the educational press last year announced that a boy of eleven years of age had passed the county teachers' examination in one of the Pennsylvania counties with an average of 98 per cent. Similar cases are familiar to most school officers.

Just as fast as can be done, the written examination, as the means of entering the work of teaching, ought to be decreased in importance, and eventually it ought to be either reduced to a purely professional test or be entirely eliminated. When that time comes, and not until then, can we be said to have a well-educated and a professionally trained teaching force. Excepting a few favored localities, we cannot be said to have either today. Our teachers work largely on enthusiasm and devotion, and these help them over many a difficulty, but altogether too frequently their work is lacking in insight and in fundamental grasp of the problems involved. Alto-

gether too often it is the work of the amateur rather than the work of the master. One of the best evidences of this lack of professor education is the way our teachers' institutes are conducted. In general way, the rank and file of our teachers can be counted to swallow almost anything that is given them. Almost any kind of a fakir can command their attention.

One of the first moves in the direction of developing an educated and a trained teaching force for a state is to reduce the number of examinations given each year, and, while keeping the method open as a necessity, to place the main emphasis on the securing of trained teachers possessing credentials which in themselves are valid for certificates, and also on the payment of such salaries as will attract trained teachers to the teaching profession of the state. The subjecting of professionally trained teachers to technical tests and the toleration of low wage standards are both wrong, and the teaching profession should place itself strongly in opposition to both of the things. One of the first, one of the most important, and one of the most fundamental of all problems in the majority of our states is that of increasing educational standards and salaries. Four examinations a year are certainly enough for any state, and two would be a much better number. If this will not certificate enough teachers to fill the schools of the state, then the problem is an economic and not an educational one, and the taxpayers and not the teachers ought to be made to face and solve it. The task of the teachers of a state is to press for standards that are right and proper, and then look to the taxpayers to provide the necessary funds to pay for the kind of teachers demanded. So long as the teachers of a state tolerate frequent and low standard examinations, they cannot expect salaries to rise.

III. SPECIAL EXAMINATIONS AND TEMPORARY CERTIFICATES

Closely connected with the question of the number of examinations and the certification of enough teachers to fill the schools of the state is the question of special examinations and the granting of temporary credentials. There is some variance in the practice of the different states in this matter, but more than half of the states make some provision for such special examinations. In Arkansas, for example, where four regular examinations are held each year,

the county examiner is empowered to grant private examinations "on the written request of the directors of the district in which the teacher proposes to teach,"¹¹ when public necessity seems to demand it; in Iowa, with a regular examination at the county seat every month in the year, "special examinations may be held elsewhere at the discretion of the county superintendent,"¹² in Indiana, with eight regular examinations a year, a special examination "may be held at any time upon the written request of school boards";¹³ in Nebraska, with twelve regular examinations each year, the county superintendent may grant temporary certificates to teach, until after the results of the next regular examination are known, to any person "who can show satisfactory reasons for failing to attend such examinations and satisfactory evidence of qualifications";¹⁴ and in Montana the county superintendent "may grant a temporary certificate to teach until the next regular examination, to any person applying at any other time . . . who can furnish satisfactory reasons for failing to attend such examination," or who holds a certificate "of like grade granted in another county," or "upon certificates or diplomas showing fitness for the profession of teaching."¹⁵

On the other hand, Kentucky provides that four regular examinations shall be held in May, June, July, and August, of each year, and "no examinations shall be held at any other time whatever";¹⁶ and in California there are no special examinations whatever, and county superintendents cannot grant temporary permits to teach unless the applicant is in possession of credentials or diplomas which will entitle him to receive a regular certificate, without examination, at the next regular meeting of the county board of education.¹⁷

What we have just said above with reference to minimizing the importance of, and gradually eliminating, the regular examination as a means of entering the teaching profession applies with still

¹¹ *Arkansas Statutes*, sec. 7568.

¹² *Iowa Code*, sec. 2735.

¹³ *Indiana School Law*, 1905 edition, sec. 81, p. 75.

¹⁴ *Nebraska School Law*, subdiv. 9 a, sec. 11.

¹⁵ *General School Law of Montana*, Art. XIII, sec. 1911; Art. II, sec. 1739.

¹⁶ *Common School Laws of Kentucky*, 1904 edition, sec. 63.

¹⁷ *California Political Code*, sec. 1543, div. 7.

greater force to the granting of special examinations and the issuance of temporary certificates. While fairly satisfactory reasons can always be advanced for special examinations in individual cases, by far the best way is to cut them out altogether, and to grant temporary certificates only to those whose credentials and evidence of professional fitness would entitle them, under a liberal plan for inter-county and interstate recognition of certificates, to regular certificates, at the proper time, without examination. Certainly in a state providing six to twelve regular examinations a year there is little reason for holding additional special examinations, and doubtless they could be dispensed with entirely without any bad effects on the schools. Perhaps the chief effect would be to force trustees to pay a little more, and to come to a decision as to teachers a little earlier in the year; and this would be a gain rather than a loss. The teacher from abroad, possessed of proper credentials, would in no way be affected by such action.

IV. FEES

The state must, as we have frequently said, require those who expect to teach its children to pass an efficiency test; and from time to time, as conditions warrant, the state should increase the requirements demanded for entering the work. The test is necessary, and all prospective teachers must be required to take it, in one form or other. This test is erected by the state for its own protection, but in more than four-fifths of the states the teacher, and not the state, pays the expense of this test in the form of an examination or certification fee.

This is nothing more than a form of petty graft imposed on the most poorly paid of all public servants, and against which the teacher has no recourse. This fee is quite generally imposed, not only for the examination, but also for a renewal or for the indorsement of a certificate in another county or state,¹⁸ and varies in amount from one to three dollars for county certificates, and from one to ten dollars for state certificates. Each trial a teacher makes at the examination means another dollar to the fund, and this system of

¹⁸ Quite a common provision is that a certificate from elsewhere will not be accepted or indorsed "until the applicant has paid the regular examination fee" into the local treasury.

fees, besides being wrong in principle, has a distinct tendency toward building up a formidable examination machinery, which in turn stands in the way of the recognition of diplomas and certificates from elsewhere and blocks the way for other progressive reforms. A careful reading of the Alabama law would lead one to conclude that this has been the effect there.

The examination is a state necessity for the protection of the children of the state, and the state should assume the expense of it and not ask the teachers to pay for it, even if the money is turned over to the "institute fund." Our national government has found it necessary to erect a civil-service test for its future employees in most branches of the public service, but the national government pays the expenses of the civil-service commission and provides the examinations free to all who wish to try them. Maryland and Delaware, two small and comparatively poor states, form commendable examples in this respect. The Maryland law provides:

The county superintendent shall hold regular examinations of teachers at such times as the board may direct. . . . No superintendent shall be allowed to charge any fees for the issuing of certificates to teachers; and if any superintendent shall be found guilty of charging or receiving any fee or reward directly or indirectly for issuing any certificate to a teacher, he shall be dismissed from office.¹⁹

The Delaware law similarly provides that "examinations shall be free to all."²⁰

V. RENEWALS

In about three-fourths of the states some provision is made whereby a certificate, at least one of the highest grade, may be renewed without the teacher being under the necessity of taking a new examination. On the other hand, in about one-fourth of the states there is no provision whatever for the renewal of any certificate, and the teacher must pass a new examination whenever his or her certificate expires. Indiana,²¹ Michigan, Iowa, Delaware, Ala-

¹⁹ *School Law of Maryland*, chap. xi, sec. 65.

²⁰ *Delaware School Law*, as approved May 12, 1898, sec. 23.

²¹ Indiana might be claimed as an exception, because if one holds two three-year certificates in succession the second is made permanent for the county at the end of the sixth year, so long as the holder continues to teach. The second three-year certificate must, however, be obtained by an examination.

bama, and Oklahoma are examples of states where there is no renewal of any certificate. Idaho²² is an example of a state where the first-grade certificate only is renewable; and Montana,²³ Nebraska,²⁴ and Minnesota²⁵ are examples of states where the first and second grades are renewable. In California²⁶ and Nevada²⁷ all certificates are renewable, though in these states all the lower grades of certificates have been eliminated. In Illinois²⁸ all renewals are at the option of the county superintendent. In Missouri²⁹ a third-grade certificate may be renewed once, a second-grade certificate twice, and a first-grade certificate any number of times. The Arkansas³⁰ provision for renewal by institute attendance has been cited previously, and a somewhat similar provision is to be found in the Texas³¹ law.

In a few states provision is also made whereby a county certificate becomes permanent for the county where issued after a teacher has taught a certain number of years. In Indiana the law³² provides that

any person who has previously taught for six consecutive years in said common schools, and shall hereafter obtain a three years' license (first-grade) to teach therein, so long as he teaches the above named subjects shall be forever after exempt from examination; but if such person shall, at any time after said examination occurs, suffer a period of one year to pass without having taught one full school year in the common schools of the state, except in

²² "The county superintendent may renew first-grade certificates at their expiration so long as the teacher is actually engaged in teaching."—*Idaho Political Code*, chap. 36, sec. 1028.

²³ *General School Law of Montana*, Art. XIII, sec. 1911.

²⁴ *Nebraska School Laws*, subdiv. 9 a, sec. 12.

²⁵ *Minnesota School Laws*, Title XXII, sec. 266; *Session Laws of 1899*, chap. 101, sec. 4.

²⁶ *California Political Code*, sec. 1775, div. 3.

²⁷ *Nevada School Laws*, 1905 edition, p. 27, sec. 7.

²⁸ *Illinois School Law*, Art. VII, sec. 3.

²⁹ *Missouri Revised Statutes of 1899*, sec. 9959, as amended by *Session Laws of 1903*.

³⁰ See footnote 25, Chapter II.

³¹ The holder must attend at least two-thirds of each county teachers' institute, and also a summer normal institute each alternate summer to be exempt from re-examination.—*Texas School Law*, 1905 edition, p. 31, sec. 92.

³² *Indiana Session Laws of 1903*, p. 291, sec. 2.

case of physical disability, properly certified by a reputable physician, then such exemption shall cease.

In California, to cite another example, the law provides:

When the holder of any certificate or state diploma shall have taught successfully in the same county, or city and county, for five years, the board of education of such county, or city and county, may grant a permanent certificate of the kind and grade of the class in which said applicant has been teaching, valid in the county, or city and county, in which issued, during the life of the holder, or until revoked *and provided*, that a certificate when renewed a second time, or any time thereafter, shall become by such renewal a permanent certificate.*

In a majority of states there seems to be an evident intention to free the successful teacher from the necessity of frequent re-examination. This is certainly a desirable tendency, especially as it relates to the renewal of those higher grades of certificates which are based on further evidence of good education and professional success. It is well to refuse to renew the third-grade certificate, based on an examination on the "common-school branches" only, good for but one year, and strictly limited to the county where granted. It would be well indeed if all such low-grade certificates were not renewable at all, even by a new examination, and not only in the county where first issued, but anywhere in the state as well. The second-grade certificate may perhaps be renewable without examination, depending somewhat upon local requirements and circumstances, though it would be best in most cases to limit very closely the number of such renewals. The first-grade certificate though, if it has been granted on the basis of any advanced educational standards, ought to be renewable without examination on the submission of evidence of professional success and growth, and successful teachers holding the highest certificates ought not to be required to present themselves for re-examination, so long as they continue to teach successfully.

It is in our inability to determine at all accurately those important elements which we call professional success and professional growth, however, that the weakness of our present system of county supervision is at once evident. In most of the states our county supervision is clerical rather than supervisory in any broad educa-

* *California Political Code*, sec. 1775, div. 4.

tional sense, and in few counties in any state is there any adequate professional supervision. The usual annual or semiannual visit of the county superintendent to the schools is of course worth something, and is often worth much; but it is of little value compared with what we need and might have if county supervision were opened up as a career for which a man might be warranted in making special preparation, and which he might hope to enter wholly on a basis of merit. Once do away with nomination and election by political parties, with the accompanying local residence, political availability, and, too often, past or expected future party service, and institute in its place an adequate system of professional supervision for our county schools, as we have done in large part for our city schools and high schools, with an equal freedom in the selection of superintendents and deputies, and then associate the certificating and supervisory functions, and the way is at once open for a marked improvement in the certification of teachers and the renewal of certificates by taking into consideration the professional growth and success of the applicant as well as the percentages made in a set examination.

Indiana is one of the very few states which have made any effort at all in this direction, and the system as worked out there, though the supervisory oversight is largely lacking, is perhaps the best plan we have as yet evolved. In granting certificates, county superintendents are authorized to "take into consideration fitness to perform the services required,"³⁴ and for those who have had teaching experience shall include, as part of the examination, the teacher's "success grades" as determined by the superintendent under whom the teacher has last taught. The law and accompanying regulations³⁵ make detailed provisions for the determination and acceptance of such grades.

Such a test, while decidedly inferior to that used by a superintendent or a supervisory principal in a city, is nevertheless an important element to include in certificating teachers in counties where the supervisory visits are of necessity short and infrequent, and the personal supervision inadequate.

³⁴ *School Law of Indiana*, 1903 edition, p. 75, sec. 81. The success items and their relative values are given there in full.

³⁵ Indiana: *Session Laws of 1903*, p. 291; act approved March 9, 1903; *School Laws of Indiana*, 1903 edition, secs. 89, 90 91.

CHAPTER V

STATE SYSTEMS OF CERTIFICATION

In addition to the local or county systems of certification, almost all the states have instituted some form of state certification as well. In a few states the state examination system has completely supplanted the local systems, and all teachers in the state are required to pass the state examinations and to hold certificates issued by the state. In a few others all questions are prepared and all examination papers are graded by the state, but the certificates to teach are issued by the county superintendents, and are limited in validity to the county where the examination was taken and the certificate issued. In such states the evolution of a centralized state system of certification is in process of accomplishment, but is as yet incomplete. In most of the states, however, the state system has either been superimposed from above to correct abuses in the local systems and to provide for a broader system of certification than that then in force, or it has been established to provide for higher and professional state certificates as distinguished from the county or local certificates, and without superseding the latter. In a few states the state examination system exists in somewhat co-ordinate relations with the local certificating system.

I. STATE SYSTEMS SUPERSEDING LOCAL SYSTEMS

Arizona and Alabama are good examples of the first type—that of a state system which has completely superseded and supplanted the local systems.

In Arizona¹ all examination questions are prepared by the Territorial Board of Examiners and forwarded to the county superintendents for use in the quarterly examinations. This official conducts the examinations and forwards the papers, unmarked, to the board for marking. Those who pass are granted territorial certificates of either first or second grade, valid anywhere in the territory.

¹ *Arizona Statutes*, Title 19, chap. 2, sec. 9, and chap. 12, secs. 106, 107.

Alabama, by a recent law,² has established a most elaborate and detailed state examination system. A state board of examiners has been constituted which prepares all questions for the examination of teachers throughout the state. Two regular examinations are to be held each year, and on the same days throughout the state. Special examinations may be given in Montgomery and at the normal schools only. All teachers, not teaching in cities of two thousand or more inhabitants, are required to take this examination, even graduates of the Alabama normal schools not being exempt. A fee of from one to three dollars must be paid by every applicant, varying with the grade of certificate desired. The members of the state board of examiners are each to be paid "five dollars per day, including Sundays, for the time they are engaged in conducting the examinations." Certificates are issued by the secretary of the state board of examiners to those who pass, and these certificates "entitle the holder to teach in the public schools of any county in this state for the following periods of time: a third-grade certificate, two years; a second-grade certificate, four years; and a first-grade certificate six years."³ No teacher shall be granted a second-grade certificate more than twice,⁴ and when a teacher has taught ten years on a first-grade certificate, it may become a life certificate."⁵

These two states are examples of a thoroughly developed state examination system. The state here controls all certification entirely and grants certificates good in any school in the state. Similar conditions exist in West Virginia, the certificates granted on the state examination being valid anywhere in the state.

There is much to be said for such a uniform state certification system, though there is a strong tendency in all such systems to go to an extreme, and in the Alabama plan extremes are very evident. No recognition, for example, is given to normal training, to diploma of any kind, or to certificates obtained in any other state. The only concession is that made to teachers in cities of two thousand inhabitants or over, which have the right by charter to examine their own teachers. In West Virginia similar extremes are evident, the law providing that "no college diploma or certificate of recommenda-

² "An Act to establish a uniform system for the examination and licensure of teachers for public schools;" approved February 10, 1899.

³ *Ibid.*, sec. 15.

⁴ *Ibid.*, sec. 16.

⁵ *Ibid.*, sec. 17.

tion from the president or faculty of any college, or normal school, or academy, shall be taken to supersede the necessity of examination by the board of examiners.”⁶

In view of the general unreliability of a mere examination as a test of proficiency for teaching, and the great desirability of establishing some standards of general education for prospective teachers, the undesirability of such limitations and restrictions as those imposed in Alabama and West Virginia is very evident. The general validity of certificates throughout the state, however, is a meritorious feature of the plan.

South Dakota is an example of a centralized state system in process of evolution, though the evolution is not as yet complete. The law makes it the duty of the state superintendent of public instruction “to prepare all questions for the examination of teachers by the county superintendents, and no county superintendent shall examine teachers with questions not so furnished.”⁷ The questions are to be sent to the county superintendents, who shall give two examinations each year, “at times uniform throughout the state,”⁸ and shall forward the answer-papers, unmarked, to the state superintendent of public instruction. After grading the same, he “shall send to each county superintendent in the state a list of persons receiving first- and second-grade certificates.”⁹ First-grade certificates are valid for three years in any county in the state, and second-grade certificates are valid for two years in the county in which the examinations were held.⁹ The state also grants, on examination, a state certificate good for five years, valid in any county, city, or town in the state.¹⁰

Nebraska and North Dakota have systems practically similar to that of South Dakota, except that the county certificates of all classes are limited in validity to the county where issued, which is a step farther removed than South Dakota from the centralized state system. That these states represent very imperfectly evolved state certificating systems is shown by the very anomalous condition whereby the questions used are prepared by the state and are uniform throughout the state, and the markings of the papers

⁶ *School Law of West Virginia*, 1903 edition, sec. 29, div. 2.

⁷ *South Dakota: Revised Code of 1903*, sec. 2278.

⁸ *Ibid.*, sec. 2295.

⁹ *Ibid.*, sec. 2294.

¹⁰ *Ibid.*, sec. 2286.

are also made by the state authorities, but the certificates are issued by the county superintendents on instructions from the state superintendent, and are limited in validity to the county where the examination happened to be taken—a purely adventitious circumstance which has nothing whatever to do with the nature of the test, at which presumably has nothing to do with the marking of the results.

The only difference between the examination system in the two states and the county examination system as found in such states as Illinois and Kentucky is that the state here prepares the questions and marks all the papers, while in Illinois and Kentucky the questions are prepared and the markings are made by the local authorities.

Indiana and Texas are even farther removed, being representatives of a state certificating system in the very beginnings of its evolution. In Indiana the use of uniform examination questions furnished by the state board of education, which was for a long time optional with county authorities, has recently been made obligatory, and recent act of the legislature¹¹ has further extended the state system by giving to all applicants for a teacher's certificate "the right to elect to have their manuscripts sent to the state superintendent for public instruction for examination instead of being graded by the county superintendent." If the state superintendent approves the papers submitted, he issues to the candidate a license which is not limited to any particular county, but which must be taken qualifying the person to whom granted, so long as in force, to teach anywhere within the state, if of the proper grade for the school for which he may be employed. The examination subjects are the common-school subjects, and, if the applicant passes, he may receive twelve, twenty-four, or thirty-six months' license valid throughout the state. By passing an examination in certain additional subjects he may receive a sixty-months' high-school license, valid in any non-commissioned high school in the state.

The Texas law¹² is almost identical. Any applicant for the three upper grades of county certificates may request that his papers be sent to the state board of examiners for examination, and the

¹¹ *Acts of 1899*, p. 488; approved March 6, 1899.

¹² Texas: *Acts of the Twenty-ninth Legislature*, chap. 124, secs. 111-

"if they believe that the papers are fairly and accurately graded," shall so report to the state superintendent of public instruction, and he shall take up the county certificate previously issued on the examination and "issue in lieu thereof another certificate of equal rank, valid in all the counties of the state."¹³ In both of these states this state general certificate plan exists in co-ordinate relations with the local county examination systems.

Connecticut is a good example of a state system which has been superimposed from above to correct abuses in the local certificating systems and to provide for a broader system of certification than that provided by the local town committee systems. Table II on page 15 shows the development of this system, and indicates how generally acceptable it has been to the teachers of the state.

II. STATE SYSTEMS FOR HIGHER CERTIFICATION

About three-fourths of the states of the Union provide some form of a state system of examination and certification, organized for the purpose of granting professional and life-certificates to experienced and successful teachers. The local certificating system here continues its local work, the state system confining its work to the granting of higher certificates to those who have served a preliminary apprenticeship under the local system.¹⁴

The theory underlying such a higher certificating system is that of rewarding successful teaching experience and professional effort by a certificate of a distinctly professional character. The Oregon law, for example, provides¹⁵ that such certificates shall be granted only to those found "to possess a good moral character, thorough scholarship, and successful experience in teaching." In Minnesota the law¹⁶ provides that "permanent teachers of high character and broad scholarship, and who have had a successful experience, may, upon examination," be granted professional state certificates.

In nearly all of the states where such certificates are granted they are regarded as of a higher order than the ordinary county

¹³ *Ibid.*, sec. 113.

¹⁴ In eleven states one finds no mention of life-diplomas in the statutes.

¹⁵ *Oregon Code*, sec. 3348.

¹⁶ *Minnesota Statutes*, sec. 3749, as amended by the laws of 1901, chap. 367,

certificate. In many states practical experience in teaching is a prerequisite to the granting of state certificates or diplomas, the amount of such experience required varying greatly in the different states, from a maximum of ten years in Alabama to a minimum of eight months in Maine. It also varies with the class of certificates desired, usually being more for a life-diploma than for a limited state certificate. All the states require that at least part of the experience shall have been attained within the state, and a few go to the extreme of requiring that it all shall have been so attained. In a few states such certificates are granted on the basis of mere service alone and require no additional evidence of academic or professional growth. Sixty or seventy months of teaching as the only prerequisite to receiving a higher state certificate is a very unsatisfactory requirement, as the teaching experience, under our very inadequate system of rural and town supervision, may have been good, bad, or indifferent, and may represent little or no real professional growth. This is especially the case where the entire teaching experience has been secured in somewhat isolated positions, or on certificates involving a knowledge of only the common-school branches. Under such a system life-diplomas come to be held by all who have taught the requisite number of months, and they cease to be a distinctive honor to the holder. They are granted to all who keep alive and hold on to a teaching job, and are naturally regarded with suspicion by superintendents. In the states where these conditions prevail a radical reform is needed.

In most of our states two grades of state certificates are granted. A few states grant more than two grades, and the nomenclature is not the same in all. Disregarding minor differences and variations, we may classify the two grades of state certificates as Professional Certificates and as Life-Diplomas. The latter should be the culmination of a teacher's certificating career. To obtain either of these certificates most of the states require an examination in professional knowledge and in advanced academic studies, in addition to evidence of successful teaching experience. Some such requirements ought to prevail in all states granting such higher professional certificates.

The educational requirements vary greatly in the different states. In some it is possible to obtain the highest state certificate with

only a common-school education, and in others enough additional subjects are required in passing from the lowest to the highest to require a full high-school education or its equivalent from the applicant. The following tables show, for forty states, the number and the branches required in each for a state certificate or diploma of the highest grade. In most states this is the State Life-Diploma, though in eleven states the statutes make no mention of such a document. As in the tables in the previous chapter, where the possession of a certificate of lower grade is accepted for the subjects covered or is a prerequisite for obtaining such a state certificate, the subjects required for such a certificate have been included. The tables, therefore, represent the total number of subjects in which the applicant must be examined, during his professional career, in order to obtain the highest certificate issued by the state. Such a method of comparison is necessary in order to make any accurate comparison of the educational requirements in the various states, and to arrive at any idea as to the scholastic attainments which constitute the educational ideals, as expressed in legislation, of the different states. The difficulty of absolutely determining the number of subjects in which applicants are required to be examined in some of the states, on account of options allowed both to the applicant and the board of examiners, has caused the omission of certain states from the tables. Forty states and territories have been tabulated.

TABLE IV

NUMBER OF SUBJECTS REQUIRED FOR THE HIGHEST CERTIFICATE IN FORTY STATES

8 subjects	1 state	22 subjects	4 state
11 "	1 "	23 "	1 "
12 "	3 "	24 "	2 "
13 "	3 "	25 "	2 "
15 "	3 "	26 "	3 "
16 "	4 "	28 "	1 "
17 "	1 "	29 "	1 "
18 "	1 "	30 "	1 "
19 "	2 "	32 "	2 "
20 "	2 "	34 "	1 "
21 "			

Mean number of subjects required, 19.

Tabulating the subjects required in the different states, we get the next table, which shows the relative frequency of the different subjects in the requirements for state certificates in the different states:

TABLE V

EXAMINATION REQUIREMENTS FOR THE HIGHEST STATE TEACHER'S CERTIFICATE
BY GROUPS OF SUBJECTS

Number of states tabulated	40
Number of states specifically requiring	
1. The common-school staples:	
Reading	40
Arithmetic	40
Physiology and hygiene	40
Grammar	40
Geography	39
Orthography	38
United States history	38
Civics	38
Writing	34
2. Supplemental common-school subjects:	
Composition	17
Bookkeeping	14
Drawing	10
State history	7
Agriculture	5
Mental arithmetic	4
Music	4
Nature-study	1
Current events	1
Manual training	1
Higher arithmetic	1
3. High-school subjects:	
Algebra	33
Geometry	31
Physics	28
Literature	25
General history	24
Botany	22
Rhetoric	20
Physical geography	16
Zoölogy	13
Geology	11
Chemistry	10
Latin	8
Trigonometry	7
Astronomy	5
English history	1
German	1

TABLE V—*Continued*

4. Pedagogical subjects:	
Theory and art of teaching	27
Psychology	20
School law	17
History of education	17
Pedagogy	13
Methods	9
School management	9
Philosophy of education	5
Science of education	2
Child-study	1
School systems of Europe and America	1
Miscellaneous:	
Thesis	7
Intellectual philosophy	2
Elocution	2
Logic	1
Moral philosophy	1

A glance at the above table shows at once what is common in requirements and what is exceptional. The subjects of group 1 are naturally common to all, as they are required of the applicant when he passes his first examination and obtains his first teaching certificate. Composition and bookkeeping are the common subjects of group 2, though required in less than half the states. Drawing and music, two far more fundamental subjects, are required in but 25 per cent. and 10 per cent. of the states respectively. Of the high-school subjects of group 3, there is a somewhat common agreement on algebra, geometry, physics, literature, and general history, from 60 to 80 per cent. of the states requiring these subjects. A certain emphasis is also placed on the other sciences, particularly the biological sciences, but the languages are in little favor. In the pedagogical group there seems to be a somewhat general agreement on the requirement of some knowledge of pedagogy, or the theory and art of teaching, but, aside from this single educational topic, but little is required. Educational psychology is required in but half of the states, and a knowledge of the school law of the state, or of the history of education either in general or in the state, is required in but 42 per cent. of the states. But one state in the entire forty, Indiana, requires any comparative knowledge of schools

of any other country than our own, and probably this is equal true if applied to the school systems of any other state than the or in which the candidate teaches. One subject in the miscellaneous group, that of thesis, required in seven states, is one of much more importance than is given it, and one capable of much usefulness in testing a candidate for a higher state certificate. In Germany is used extensively in the examination of teachers, and with very good results. The ability to hunt up and organize information on an educational question ought to be expected of anyone worth of the higher state certificates.

Examined critically, these requirements for the highest state certificates are low, even under the best conditions, and the standards in many of the states are very low indeed. A state professional certificate or life-diploma ought to represent, not only a high degree of professional study and success, but also some substantial evidence of broad general education and thinking power. It ought never to be given on the basis of a certain number of years of teaching and recommendation by some local authority. While most of the states require an examination in additional subjects, in but a very few states is there any specific requirement made as to the nature and amount of the education prerequisite for admission to the examination for these highest certificates, the examinations being thrown open to anyone who can pass them.

In general, just as was the case with local county certification, there is no distinction in state certificates between certificates for the elementary school and those for high-school work, a state certificate generally being good in any kind of school. Less than one fifth of the states make any distinction whatever between these certificates.

All plans for higher state certification should have one main purpose—that of granting certificates of general validity to those teachers whose general education, professional success, and high personal character stamp them as especially well educated and successful members of the teaching profession. To do this is particularly desirable. Those who have proved their capacity as teachers, and who can offer proof as to character, scholarship, and pedagogic insight, ought to be singled out and given professional or life-certificates, valid anywhere in the state for the kind of work their holders

are prepared to do. So long as these persons continue to teach, there ought to be no question as to certificates, and large freedom of movement ought to be allowed to them. In states where the higher professional and life-diplomas are led up to by a graded system of certificates, each presupposing added knowledge and professional growth, and where the granting of them involves a searching professional examination rather than an academic one, there is little to lose and much to gain from the issuance and general recognition of such certificates and diplomas. In so far as these certificates and diplomas are based on high requirements, they should be recognized between states, so that the successful and thoroughly professional teacher may have as large freedom of movement as possible.

On the other hand, if these higher certificates and life-diplomas are granted on the basis of mere teaching service, and perhaps a more or less formal recommendation, they may not, and probably will not, designate the professionally competent, and any general recognition of such certificates is very inadvisable. There are states in which the possession of a life-diploma is a distinct honor and marks the holder as one of the most capable and progressive teachers in the locality; and there are other states where its possession is no honor at all, and where discriminating boards of education look upon an applicant with certain amount of merited suspicion when he heralds the fact that he holds a life-diploma. It may merely signify that he has taught in some unprogressive and undiscriminating locality the requisite number of months.

A life-diploma, too, ought not to be valid for life, if the applicant leaves the teaching profession. A life-diploma ought to be intended for the professional teacher, the man or woman who has made education a profession and a life-career, and it should not be possible for the non-professional teacher to obtain it and then lay it away as a rainy-day safe-guard. Some of the most troublesome applicants with which boards of education or superintendents have to deal are the holders of life-diplomas who have been out of teaching for years, but who, in the press of hard times, want a position in the schools and use their influence to secure it. As a means of eliminating this class of non-professional teachers, a few states have inserted in their laws what seems to the writer to be a very wise

provision;¹⁷ viz., that the life-diploma shall lapse if the applicant fails at any time to teach or engage in some form of educational work, without a valid excuse, for a certain number of years.

"A state diploma shall be good in all schools throughout the state, until revoked by the superintendent of public instruction, or until the holder shall fail for two successive years to be engaged in active school work."—Kentucky: *Acts of 1894; School Law*, sec. 132.

"Provided, that any teacher holding a life-certificate shall forfeit the same by leaving off the business of teaching for five consecutive years."—Alabama: "An Act to establish a uniform system for the examination and licensing of teachers of the public schools;" approved February 10, 1899; sec. 17.

"No professional diploma or certificate shall be in force if the holder allow a space of five years to elapse without following some educational pursuit."—*Utah Revised Statutes*, sec. 1767, div 4.

"No life-certificate shall be in force after its holder shall permit a space of three years to lapse without following some educational pursuit, unless said certificate shall be indorsed by the state superintendent."—Minnesota: *Acts of 1901*, chap. 367, sec. 1.

The Nebraska law contains a provision almost identical with that of Minnesota.—*School Laws of Nebraska*, as amended to 1905, subdiv. 9 a, sec. 3, div. 1.

"If the holder of a professional (life-) certificate shall at any time cease to teach or be engaged in other educational work for a period of five years, such certificate shall lapse, and the lapse, with date and cause, shall be made a matter of record in the office of the state superintendent of public instruction. Such certificate, however, may be reinstated under such rules as may be prescribed by the superintendent of public instruction."—North Dakota: *Revised Political Code of 1899*, chap. 9, Art. IX, sec. 737, as amended by subsequent acts.

CHAPTER VI

SPECIAL FORMS OF CERTIFICATES

So far in the consideration of the question of certification we have dealt with teachers' certificates, merely as such, and without distinction except as to grades. This has been done for the reason that in almost all of our states a certificate of any of the regular grades is valid for teaching anywhere in the school system. In this chapter we wish to consider certain special forms of certificates, granted by a few states, to teach in certain types of schools or for instruction in certain special forms of school work, viz., high-school certificates, kindergarten certificates, and special certificates.

I. HIGH-SCHOOL CERTIFICATES

In almost all of our states a teacher's certificate of any grade is good to teach in any part of the school system in which the teacher may be able to secure employment. Cases not infrequently happen of a teacher teaching in a high school when the teacher herself has not had more than a year or two of high-school work. The writer has personally come in contact with three such cases. To be employed as a teacher in a high school when one has never had more education than that represented by a four-year high-school course is also not uncommon. With the great increase in the number who go to college, and the general community insistence on having a corps of trained teachers for a high school, the number of such poorly educated secondary-school teachers is naturally growing less each year. In almost all of our states, however, the change is taking place in response to community sentiment rather than in response to educational legislation, and the attitude of almost all of our states, as expressed in legislation, is far from being in accord with the best thought of the times.

It may be laid down as a safe standard that a teacher is not prepared to teach in a high school until after he has had some advanced training beyond that given in the high schools or normal schools of the state. The high school is the place for bringing the student into contact with new methods of instruction and new ways of

thinking as well as new subject-matter. Much of the work of the high school, with our elective courses, many subjects of instruction, and advanced instruction along certain lines, is fully as advanced as that done in the first year of the college course. Unless the teacher has come in contact with men who are masters of such subjects, and has learned something of the master's method of dealing with the great truths that lie in his field, he is not likely to carry much of a message to the young people who come under his direction in the secondary school. Just as it is desirable that the teacher in the elementary school shall have had some high-school training to give her additional knowledge and breadth of view and culture, so that she may make her teaching broader than the mere course of study or the textbooks she uses, so it is equally desirable that the high-school teacher should be expected to know more than what is taught in the high school, to have come in contact with men of broader and more extensive learning, and to have caught something of that method—which, after all, is nothing more than organized common-sense—which men of larger scholarship apply to the solution of difficult problems. This practically demands that the teachers of our high schools be required to be college graduates, or to have had an equivalent education. This fundamental requirement was clearly set forth by the Committee on College Entrance Requirements¹ in its report made to the National Educational Association, in 1899, and is certain ultimately to find general acceptance.

Such a requirement obviously cannot be enforced by means of a written examination. To examine the candidate on the subjects studied in the university would be not only almost impossible, but ridiculous as well. To attempt to enforce it by an examination given on the subjects to be taught in the high school will also fail, for the reason that the high-school graduate, fresh from his studies, can almost always pass the examinations more easily and with better grades than the college graduate.² The only safe way is to impose

¹ See *Proceedings of National Educational Association*, 1899, p. 658.

² This was clearly the experience of California. Under the old system of examinations for high-school certificates, the candidate fresh from the high school could do better than the college graduate. There was much variation in results according to the emphasis placed on the examinations by the county

a definite educational requirement, such as graduation from a college of recognized rank, as a prerequisite to the granting of such a certificate to teach. For the strictly pedagogical part of the preparation either certain work and courses in education should be required to be taken as part of the college course, or a special examination on educational topics alone ought to be provided.

A few of our states have passed through the earlier stages of a series of grades of general certificates, and have evolved a high-school certificate, based upon certain definite educational requirements. California is a good case in point. In the earlier period of its history this state issued three grades of teachers' certificates. Later a distinct high-school certificate was evolved, but it was granted only on the basis of a successful examination before a county board of education. Still later, in 1893, the law³ was so amended that a graduate of the University of California, or any other institution recognized as equivalent in rank, who had complied with certain subject-matter and professional requirements, might be given a recommendation by the faculty of such institution, and this recommendation must be recognized by all county boards as valid for a high-school certificate. This placed the educational requirement on a par with the examination, the two methods existing for a time side by side. In 1901 the county examinations for the high-school certificate were entirely abolished,⁴ and in 1905 the educational requirement was raised to a year of graduate study in addition to a full college course.⁵

In Indiana the state board of education has also provided within recent years for an examination for high-school certificates,⁶ and by a series of decisions it has compelled all teachers to stand an examination in the subjects which they expect to teach in the

boards of education, but in some counties almost all of the high-school teachers were non-university material. This fact, coupled with the confessed inability of many of the county boards properly to conduct such an examination, and the rapidly increasing number of university graduates, led to the abolition of the county examination entirely in 1901.

³ California: *Political Code*, sec. 1521, 2 a.

⁴ *Ibid.*, revision of sec. 1772, *Session Laws of 1901*.

⁵ *Bulletins* 86 and 99, California State Department of Education, 1906.

⁶ See details of examinations, *School Law of Indiana*, 1903 edition, pp. 39, 40.

schools.⁷ All, however, is based on a written examination without the requirement of any definite educational preparation.

These two states, given as examples, stand nearly alone in the matter of definite higher requirements for high-school teaching. California occupies the most advanced position in the matter of any state in the Union. In a number of other states the diplomas of local universities are recognized for certificates to teach, but such recognition does not involve any exclusive requirement of such diplomas for high-school instruction. In most of our states the only legal requirement for instruction in a high school is one of the regular grades of county certificates.

The idea underlying the California position, that of requiring a separate certificate for high-school work and of making a college education a prerequisite for it, is so thoroughly sound that the writer predicts that it will ultimately be accepted generally throughout the United States. In many of our states the enforcement of such a requirement would not be possible at present, but in almost every northern and western state a movement looking in that direction is possible now. The first step is the definite recognition of high-school work as a field demanding special and additional preparation, and the separation of high-school certificates from those of elementary schools, by the establishment of an educational requirement to supplement an examination. In view of the enrichment taking place in the seventh and eighth grades, and the probability of departmental work and a six-year high school coming to be recognized features of our educational system, very sharp lines of demarkation should not be drawn. The high-school certificate ought also to be valid to teach in at least the seventh and eighth years of graded city systems. The second step in the process is the recognition of college diplomas and other evidences of preparation as the full equivalent of the subject-matter examination; and the third and last step is the entire elimination of the subject-matter examination and the requirement of the college diploma in its stead.

II. KINDERGARTEN CERTIFICATES

What has been said with reference to high-school certificates applies with equal force to kindergarten certificates. The work

⁷ See decisions in *School Law of Indiana*, 1903 edition, decision 6, p. 77, and decisions 29 and 30, p. 80.

of the kindergarten is special and requires special training. A written examination cannot test the teaching ability of the prospective kindergarten teacher. The work, too, demands broad sympathies and culture, and these are generally a product of a somewhat generous education. A certificate of graduation from a reputable kindergarten training-school, or from the kindergarten department of a state normal school, where a good general education has been presupposed for admission, is about the only satisfactory test which can be imposed. The prerequisite general education ought not to be less than a high-school education. This standard has been reached by a number of cities, and by California⁸ as a state.

III. SPECIAL CERTIFICATES

By these are meant special certificates to teach special subjects, such as music, drawing, physical training, etc., and not the temporary certificates mentioned in a previous chapter. The intent of all special certification should be to recognize extensive technical or special training, and along lines different from the ordinary lines of school work, and the practice should not extend to the granting of special certificates to those who ought to but cannot secure regular certificates. There are few lines of work in which a special certificate should be granted. Drawing, music, physical training, domestic science, special instruction of defectives (deaf and blind), manual training, and certain forms of commercial, industrial, and technical work will about cover the field.

The danger of all such special certificates is that the holders, having entered the profession by an easier method, will represent a lower standard of general intelligence and culture than the other teachers of the school, and that the work of the teacher will be cast

⁸The law here provides that kindergarten-primary certificates may be granted "to the holders of diplomas of graduation from the kindergarten department of any state normal school of this state," or "to holders of credentials, showing that the applicant has had professional kindergarten training in an institution approved by the state board of education, and also general education equivalent to the requirements for graduation from the kindergarten department of a California state normal school." As all California state normal schools require a high-school education for admission and then offer a two-year course, the requirement of a high-school education and kindergarten training in an approved school in addition is a general state requirement.—California: *Political Code*, sec. 1775, subdiv. 1 c.

into more or less disrepute in consequence. This has certainly been the case altogether too often with the specially certificated teacher of penmanship in our elementary schools, the teacher of bookkeeping in our commercial courses, and the teacher of German, French and Spanish in our high schools. By far the safest way, where the wage standard of a state will permit, is to insist upon a minimum of general education for all such special teachers, and to limit the granting of special certificates as closely as may be done. It must be recognized that drawing, music, and some forms of industrial and technical work require long and special training, and that a insistence on the regular academic standards would not be possible but the teacher of the modern languages is essentially a teacher of culture and the history of culture, and an insistence upon the regular academic standards is in the line of better education. The provision of the California law with reference to special certificate seems to the writer to be especially meritorious.*

* "Special certificates may be granted to those who, by examination or ar credentials, or by both, shall satisfy the board of their special fitness to teach one or more of the particular studies for which special certificates may be granted and who shall satisfy the board of their proficiency in English grammar, orthography, defining, and methods of teaching. No special certificate shall be granted to teach, in any school, studies other than drawing, music, physical culture, and commercial, industrial, and technical work."

CHAPTER VII

SUPERVISORY CERTIFICATES

A tabulation of conditions in the various states shows that in fifteen of our states the certification of teachers is almost wholly in the hands of the county superintendent alone; in fifteen other states the certification of teachers is controlled by a county board of education or examiners, of which the county superintendent is a member in all but one state; and in the remaining states the certifying authority is the state, the town, or some combination of the state and the locality.

Of the fifteen states in which the county superintendent (or an equivalent official) has control of the certification of teachers, we find that in four¹ no educational or professional qualifications have been established for the office, while in the other eleven some requirements for the county superintendency are laid down in the laws of the state. In Arkansas² and Iowa³ the possession of a live first-grade certificate is made a prerequisite to taking the office. In Montana⁴ the county superintendent, in addition, must be a citizen and a resident of the state and county, and have had twelve months of experience as a teacher in the schools of the state. In Idaho⁵ a first-grade teacher's certificate with one year of teaching experience on it, and a total of not less than two years' experience in the state, are required. In North Carolina⁶ the county superintendent must be "a practical teacher, or who shall have had at least two years' experience in teaching school, and who also shall be a man of liberal education." In Pennsylvania⁷ the county

¹ Colorado, Illinois, Minnesota, and Wyoming.

² *Arkansas Statutes*, sec. 7562.

³ *Iowa Code*, sec. 2734, as amended by the *Session Laws of 1898*, chap. 85.

⁴ *Montana Statutes*, Title III, chap vi, Art. II, sec. 1744.

⁵ *Idaho Political Code*, chap. 36, sec. 1019, as amended by the *Session Laws of 1903*, p. 284.

⁶ *North Carolina Statutes*, revision of 1905, sec. 4135.

⁷ *Pennsylvania School Laws*, sec. ccxxix.

superintendent must hold a diploma from a college or normal school, a professional (first-grade) certificate issued by some local authority, or a certificate of competency issued by the state superintendent; and he must also have had successful experience in teaching. In Georgia⁸ the county school commissioner must be examined by the president of the county board of education on questions furnished by the state school commissioners, before he can be elected. In Maryland⁹ the state board of education examines candidates for the office of county examiner, and gives certificates of qualification.

In Wisconsin alone, of the first group of fifteen states, is there anything like an adequate educational and professional requirement made for the office of examiner and superintendent. In this state a definite county superintendent's certificate is provided for,¹⁰ to be issued upon examination before the state board of examiners. The examination includes all the subjects for a first-grade certificate, and, in addition, "school law, and the organization, management, and supervision of district schools." The applicant also must be of good moral character, and have had not less than eight months' experience as a teacher in the public schools. The county superintendent is still nominated and elected along political lines, but must meet these requirements to qualify for the office.

Of the second group of fifteen states, where a county board of education or examiners examines the candidates for teachers' certificates, but few states distinctly and specifically require that the board, or any large proportion of it, shall possess any particular educational or professional qualifications. In California the county board of education, consisting of five members, one of whom is the county superintendent, must contain three persons holding grammar-grade (first-grade) teachers' certificates, and, if there is a high school in the county, one member must hold a high-school certificate.¹¹ Michigan also requires¹² that a member of the county board of examiners "shall hold, or shall have held, within three years next preceding his appointment, at least a second-grade cer-

⁸ *School Laws of Georgia*, 1903 edition, Part IV, sec. 22, p. 18.

⁹ *Maryland Code*, Art. LXXVII, chap. iii, sec. 14.

¹⁰ *Wisconsin School Law*, 1905 edition, sec. 461, 1, p. 99.

¹¹ California: *Political Code*, sec. 1768, subdivs. 2 and 3.

¹² *General School Laws of Michigan*, 1903 edition, secs. 177 and 179.

tificate," and also have had nine months' experience as a teacher. The county school commissioner in Michigan must be a graduate of a college or normal school, or hold a state certificate or a county first-grade certificate. A few other states require the county superintendents to hold certificates to teach, and in many states where such a requirement is not expressly stated in the law it is enforced by public opinion. In a general way it may be said that educational opinion has crystallized on the idea that the certification of teachers should be in the hands of professional teachers instead of laymen, and that a county superintendent, or other certificating authority, should be possessed of at least the highest grade of certificate which is issued by him.

This is all very good as far as it goes, but it is entirely inadequate to meet the needs of present-day education. Such a system brings to the front only the old and successful practitioner, while what we need is the man who, in addition to successful practice, has secured a broad education and made a careful study of school administration and educational theory as well. There is no particular fault to be found with the present body of county superintendents as such. They are good enough in their way, and are the best the present system can produce. The trouble, however, is with the system. It produces the successful practitioner who has learned largely by experience and imitation, and not the educational leader who works, partly in the light of his past experience, but largely in the light of the best educational theory there is on the subject. Too often our superintendents work without any guiding theory of consequence, with the result that their educational work is traditional work and highly conservative, and their main services clerical rather than supervisory, in any broad educational sense of the term. Such work and conditions will not meet the needs of the future in a nation where the changes in the conditions of living, and the consequent modifications of an educational system to meet changed conditions, are taking place as rapidly as they are with us at present. Everywhere our rural schools are calling for leadership and close educational supervision of a new order; but little can be done to answer this call until some important changes are made in our methods of selecting supervisory officers, and the number of these is largely increased. In the judgment of the writer, two funda-

mental changes ought to be made in our method of selecting men for supervisory positions. Both are of fundamental importance. The first is the erection of distinctly higher educational and professional standard for supervisors; and the second is the elimination of the county superintendency from politics, making it an appointive office, with the selection made wholly on the basis of educational ability.

Wisconsin is an example of the first, and as such it stands almost alone among the states. The Wisconsin plan is capable of general and further application. A distinct supervisory certificate ought to be erected by each of our states, and the premium placed upon thorough preparation for educational leadership. The education leader is the modern social engineer, and he must possess a broad training and be able to see farther than those he proposes to lead and direct. Such a certificate could not at first be required of all. Such an attempt would result either in failure or in very low standards. The standard for such a certificate should be made high. The desirability of holding such a certificate should be emphasized if possible, a monetary premium should be placed on the possession of the same, and, after the number of such certificates has multiplied sufficiently, then require that, after a certain time, all new supervisors or superintendents must hold such certificates.

It must be kept clearly in mind that the real value of such a certificate will lie in the high standards required to secure it, and that broad and liberal training should be demanded as a prerequisite for educational leadership. A high-school education, or good normal school training, or the possession of a first-grade certificate based upon an examination on some high-school subjects, is certainly minimum in general education. In addition, there should be evidence of high character, and of particularly successful experience as a teacher for a reasonable length of time. All this is in the list of prerequisites, and these are as low as can be made with safety. The candidate possessing these prerequisites should now be subjected to a purely professional examination in educational psychology, the theory of education, school administration, the school law of the state, and school hygiene; and the history of the educational system of the state could also be added with advantage. A still further test of the candidate's capacity could be made by

requiring him to prepare a thesis on some practical educational topic, as is done in Germany, giving him sufficient time and the use of a library. If the educational leader is to solve problems, he must know how to consult authorities, and select and organize the information he needs for his topic. The thesis is a splendid test of this particular kind of ability.

Keeping in mind the desirability of broad education for leadership, the above might well represent the requirements for a second-grade supervisory certificate. A first-grade certificate should be based on the possession of a college or university education, and similar evidence as to character and successful experience as a teacher. In place of the examination in educational subjects, a recommendation from the faculty, stating that the candidate had completed a required pedagogical course while in the institution, and which included the subjects of the examination, should be accepted for all except possibly the thesis. There might be a gain in still requiring this to be stimulated, with the other evidence, to the certificating authorities.

If the leading states of the North Atlantic, North Central, and Western groups were to provide for such supervisory certificates, making their use optional and giving them the validity, for any purpose, of first-grade teaching certificates, with full inter-county recognition for the second-grade and interstate recognition for the first-grade, the holders would soon make a place for themselves and demonstrate the wisdom of the certificate. In a short time, five to eight or ten years, it would be easily possible, in almost every state in the groups mentioned, to legislate that in the future no new county superintendent (or his equivalent) should be elected (or selected) who did not hold one of these certificates. In still a few years more it would be possible to abolish the lower-grade supervisory certificate entirely, thus securing as the educational leaders of our schools a group of college-trained special students of educational administration. The progress which we could make under such a system of leadership would be very much greater and much more rapid than we now secure.

It may perhaps be argued that under the present salary schedules for county supervision such standards would not be possible. This, however, as we said with reference to teachers' certificates, is a

question with which the educational men of the state need not concern themselves. The present salaries are in many cases high enough for the quality of the service secured. The thing for men of education to do is to demand proper standards, those which are right from an educational point of view, and then compel the taxpayers to provide adequate salaries to secure the class of men needed. We should not be afraid of a shortage in the crop. A shortage is usually a good thing. One main reason why the pay for teaching and supervision is so low today throughout the United States is that, with our very low standards of admission, the crop always long.

The second important step, and one that ought to follow close after the first, is the entire elimination of the superintendency from politics. There is the greatest need of such a reform. There is more reason,教育上, why we should nominate a local Republican or local Democrat for county superintendent, and expect him to stump the county for election, than that we should nominate Republican or a Democrat from among the voters of a city, and expect him to stump the city for election as a city superintendent or a high-school principal, or a grammar-school principal. If it is right educationally to vote for one then it is right to vote for the others, and if it is wrong educationally to vote for one, then it is wrong to vote for the others. A county superintendent should be as much an expert educational officer as a city superintendent, a county horticulturalist, a county entomologist, or a county health officer, and the fact that this is not as thoroughly an established principle with the mass of educational men as it is with city superintendent and scientific men is due to the estimate we place upon the function of the county superintendent. We look upon it as a clerical office because the number of Kerns and Hyatts is so small that it is only once in a while that we produce, under our present successful practitioner system, a real educational leader.

That better and professional supervision for our rural schools is coming in the near future may be regarded as a certainty, and the position that the county superintendent will hold in the future will be determined by the attitude he assumes toward the two great and much-needed reforms indicated above. If he sees the educational importance of these and works toward their accomplishment, he

will come in time to occupy a position of dignity and importance in his county analogous to that which the city superintendent holds in the city, and his purely clerical work will be done for him by cheap clerks, as it is done for the city superintendents. If, on the contrary, he opposes these reforms from selfishness or from lack of appreciation of their deep significance, then we shall be forced to put a system of educational supervision in over him, reduce him to purely clerical functions, and put him on clerical pay. The future of county supervision will be settled within the next ten or fifteen years in most of our states, and we predict that it will be settled very much along these lines.

County and rural supervision is today a closed field. There is no way to enter it purely on the basis of merit. More, it is a closed field to every man not a resident of the particular county and more or less politically inclined. Political affiliations, political availability, place of residence, and often the political dominance of one party or the other in the county—considerations which have no more to do with a man's ability to be an educational leader of the schools of the county than the church he belongs to, the age of his wife, the name of his baby, or the size of shoes he wears—are considerations which, nevertheless, largely determine the selection of the county superintendent.

In the process of nomination and renomination many accidents happen. A successful superintendent may be sure of renomination, but fail through some eleventh-hour trade made on the floor of the convention. Still more often he fails because his renomination would destroy a good geographical distribution of the ticket as a whole. If renominated, he may be defeated at the polls because of a Roosevelt or a Bryan landslide which carries the other party into power all along the line. Or he may be defeated by a woman, put up by the opposite party purposely to defeat him, and who has sought the office as only a woman can. Perhaps he is defeated by some third-rate country schoolmaster, who puts up the plea that the county superintendent deals with the country schools, and that, therefore, he should come from the country rather than the town. These are not hypothetical cases. The writer knows of at least two actual cases to illustrate each. These considerations are not educational

ones, and education and politics cannot be mixed in any proportions whatsoever without harm to education.

Certain fundamental propositions must be laid down with reference to county school supervision, and these must be insisted upon with emphasis. In the first place, it should offer a career for which a good man would be warranted in making a careful educational and professional preparation. In the second place, a man should be able to enter the work purely on the basis of merit, and free from any unnecessary and irrelevant considerations. In the third place, the office in no sense exists to reward old and faithful teachers, and the position should never be awarded as a charity. In the fourth place the educational functions of the position should be paramount, and the clerical and legal functions purely secondary. We tend to emphasize the county-office side of the position, and then to defend the bad features of the method of selection on this ground; but there is no argument here that cannot be made to apply with equal force to the work of a city superintendent. We cannot insist too strongly that the first business of the schools is the education of children, and that anything which fails to promote this to the maximum possible is to the extent that it fails a robbery of the child.

The supervision of instruction and the certification of teachers are correlative functions, and should be exercised by the same authority. The renewal of certificates should be based upon success as well as service. The determination of this success is at present difficult, because our county supervision is so thoroughly inadequate. But, as we pointed out at the close of chap. iv, the degree of success attained by a teacher is an important item which should be included in all future consideration of a teacher's application for either a renewal or a new certificate.

The present "closed shop" conditions in county supervision need to be changed. In any attempt to change them the most opposition will come, not from the politicians—for the office has but little patronage, and in making selections for this office the politicians often make mistakes which bring them much undesirable criticism—but from the conservative body of schoolmen themselves. If the schoolmen of a state could once fix their eyes on the horizon and agree on this reform, it could be accomplished tomorrow.

CHAPTER VIII

DEFECTS AND REMEDIES

In the study of present conditions, perhaps the two most significant weaknesses revealed in our systems of certification were the low standards and the great lack of uniformity. To raise and to standardize our certification requirements ought to be the keynotes of future progress.

The amount of common knowledge which we as a people have is increasing so rapidly, our elementary-school curriculum is being enriched so fast, and the general intelligence of our people is becoming of such a standard that the teacher with a meager intellectual equipment should no longer have a place in our educational system. Yet Table III in chap. iii shows clearly that, for the twenty-eight states tabulated, it is possible to secure a third-grade teacher's certificate in 90 per cent. of the number with no educational test beyond the common-school branches; and for the thirty-seven states tabulated it is possible to secure a first-grade certificate, in two-thirds of these states, without giving evidence of knowing anything about a single high-school subject except algebra, and in two-fifths of the states without knowing even this. These low-standard certificates are wholly out of place today and ought to be eliminated at the earliest possible moment.

The great diversity of our requirements and our unwillingness to recognize equivalents are two of our marked educational characteristics. So great is the diversity that a good teacher today is unnecessarily hampered in his ability to move about, not only from state to state, but also from county to county, and often from county to city or from one city to another. Many of these restrictions are not warranted by any educational standards, but are more of the nature of a protective tariff levied on foreign capacity and in favor of home production. This makes the local examination system, with its accompanying barriers, in the nature of a protected industry, and this is not in the interests of good education. The strict county system too often perpetuates the rule of the weak by

shielding them from the competition of the strong. All barriers competency are wrong.

That these barriers exist has been pointed out frequently previous chapters, and need only be summarized here. In fourteen states there is no admission to the teaching profession except on examination. In eleven of these states forty or more subjects are required to secure the highest certificate granted, and all must be secured by examination. In fourteen states no recognition is given to diplomas from normal schools or other institutions of learning within the state. The graduates of such institutions are placed on par with the "graduates" of the country school. In nineteen states absolutely no recognition is given to any form of credential from another state. Only eleven states recognize normal-school diplomas from other states; seventeen recognize college or university diplomas from outside the state; and eighteen recognize a life-diploma or state professional certificate from elsewhere. In a number of other states there is no recognition of certificates from one county to another within the state. Many of these barriers are indefensible while the defense of others can be eliminated with ease by raising and standardizing requirements.

The great diversity of our requirements may be seen from Table III in chap. iii, and Table V in chap. v. We ought to work toward greater uniformity by the establishment of educational prerequisites, common requirements or norms within subjects, option and equivalents as between subjects, and the entire abolition of certain other subjects from the list of tests. We need to do in the examinations for teachers' certificates what the colleges have done in the matter of entrance requirements—viz., unify as much as possible and then accept evidences of education, equivalent subjects, and equivalent certificates, so far as they go, leaving the candidate to supply the balance by an examination instead of requiring him to pass on the entire list. If this cannot be done by arrangement within states and between states, then we would better work for national uniformity by establishing a national examining and certifying board, after the plan of the College Entrance Examination Board, which will examine teachers, pass on credentials, and issue certificates of such a high standard that our states would be forced to accept them, just as the colleges have been forced to accept the certificates of the above board.

The low standards are also apparent in the requirements for life-certificates. This is evident from Table V, pp. 54, 55. While a state life-diploma ought to be of such a standard that it would be accepted willingly anywhere in the United States, many of the low-standard life-diplomas now granted certainly ought not to be recognized from state to state. A life-certificate, as we pointed out in pp. 54, 55, ought to be led up to by a series of graded certificates, each demanding higher and higher standards; and the state life-certificate, the culmination of a teacher's certificating career, should be given only to those whose education and professional standing single them out as the state's most capable teachers. In a number of our states, on the contrary, a life-diploma is obtainable on the single basis of a definite number of months of teaching, and hence involves no educational standards of any consequence and really stands for nothing.

Each state must, of course, be allowed to set its own standards, and it cannot be expected to accept certificates or diplomas from states having a distinctly lower standard. This should be recognized and accepted, and reciprocity should not be expected. Instead of being "upnish" about it and striking back by way of retaliation, as certain states do because their credentials are not accredited by some more progressive state, they should on the contrary welcome a teacher from such a state because of his better training and what he may bring.

It is possible, though, for most of our states to determine the value of credentials from elsewhere, and to recognize them as far as they apply. The work of California in this respect is most commendable. This state has a published list of accredited universities and normal schools throughout the United States and Canada, and a list of accredited state diplomas. Anyone possessing any of these credentials may be certificated in any county in the state, without examination, and on the same terms as the holders of similar local documents. A fundamental principle in California is that the certification door should always be open for competency, from whatever quarter it may come.

In almost every state, too, these low-standard certificates are good for teaching in any part of the school system in which the holders can secure employment. This should not be allowed to

continue, but a separate high-school certificate should be erected for high-school work, as outlined in chap. vi. Teachers in branches of the service should be required to know more than they are expected to teach, and the importance of this for high-school teachers cannot be overemphasized.

In the field of supervision we have scarcely made a beginning in the preparation and selection of a body of educational leaders and we are tied to present practices by a political string. In our lack of leadership we partake of a common weakness of democracy—that of emphasizing the importance of the masses and forgetting the leader who must lead and direct them. The soldier, the lawyer, the doctor, and the engineer have cast aside the apprenticeship and the successful-practitioner methods, but the educator has not evolved that far in his thinking as yet: Our pedagogical departments are the organized body of our pedagogical knowledge are too recent to have reached the point of general use and application. We are in education where the army and navy were before West Point at Annapolis, and where the engineer, the doctor, and the lawyer were a generation ago, before the development of modern profession schools for the training of leaders in these fields. Yet leaders must be trained for work in education, as in these other professional fields, if we are to make any great and worthy progress in the future.

In the matter of examinations, there is great need of our decreasing the emphasis which we now place on the written test. We could greatly improve our certifying systems by erecting certain educational prerequisites and accepting evidence of education in lieu of at least part of the examinations. As fast as can be done, the periodical written examination ought to be diminished in importance as a means of recruiting our teaching force. We ought to insist more and more on securing the educated and trained teacher instead of the raw recruit. Not only should the number of examinations be decreased, but teachers of training or of long and satisfactory experience ought to be relieved of the necessity of frequent tests. There is no valid excuse, for example, for compelling a graduate of a state normal school to pass a county examination before she can teach. If her normal-school diploma does not stand for better education and better professional preparation than the county exami-

nation represents, and if she is not superior to the untrained product of the county examination method, then it is time either to renovate the normal schools of the state and put in a corps of teachers who can produce a better output, or to abolish them entirely and save an unnecessary expense.

The securing of the educated and trained teacher instead of the raw recruit is, however, an economic problem as well as an educational one, though this economic problem has an educational aspect as well. There never can be high educational standards for teachers in such states as Indiana, Illinois, Wisconsin, Missouri, or Kansas—states using the very objectionable census basis for the apportionment of their school funds, and raising but a small general tax—until there is a radical reform in the methods of raising school funds and of apportioning the funds after they have been raised. I have pointed this out in such detail elsewhere¹ that I need only mention it here. There are, in their ultimate analysis, but three primary problems in education. The first is that of how properly to finance a school system. The second is how to secure a trained teaching force for it. The third is how to supervise it to produce leaders for its management and improvement. The financial one always underlies the other two.

By way of giving concreteness to these suggestions, we will indicate a possible general plan for certification, based on the best of our current practice and theory. While not claiming that the proposed plan is perfect, we nevertheless feel that it, or its substantial equivalent, could be somewhat generally adopted with the greatest advantage to our educational work. The aim of the plan is the ultimate establishment and maintenance of high standards for our teaching work, and the method by which it is proposed to attain such standards is that of gradually raising requirements, and thus gradually cutting off the great mass of poorly educated and poorly trained teachers who today work on low standards, work for small wages, and too often serve to discredit the name and work of a teacher.

¹ *School Funds and Their Apportionment*, by Ellwood P. Cubberley, Teachers College. "Columbia University Contributions to Education," Vol. II, 1905; 255 pp.; \$1.50.

PROPOSED PLAN FOR THE CERTIFICATION OF TEACHERS

A. TYPES OF CERTIFICATES

Five types of certificates shall be provided for, as follows:

- I. *Elementary-School Certificate.*
 - II. *High-School Certificates.*
 - III. *Special Certificates.*
 - IV. *Supervisory Certificates.*
 - V. *State Life-Certificates.*
- I. ELEMENTARY-SCHOOL CERTIFICATE.—Good only for teaching in the first nine grades of the public schools, but not good for the ninth grade if the same is part of an organized high school. This certificate to be (at first) of three grades, as follows:
1. *Third-grade elementary certificate.*—To be granted on upon examination. Subjects to be all the common-school branches, English composition, civics, physiology and hygiene, and the principles of teaching and school management. Certificate good for one year, and only in the county where issued.
Intended as a trial certificate, not renewable, and no more than two such certificates to be granted to any applicant. Success while teaching under this to be considered in granting future certificates.
(Such a certificate ought not to be granted at all, but is included as a concession to present practice in so many of our states. As soon as the question of taxation and appropriation of funds can be attended to, this certificate ought to be abolished entirely. The first step would be to provide that not more than one such certificate should be granted to any applicant, the second step to provide that it should not be valid to teach in any city or town grade school or any rural school enrolling over twenty-five pupils, and the third step would be to abolish it entirely.)
 2. *Second-grade elementary certificate.*—To be granted upon an examination on all the subjects required for third-grade certificate, and, in addition, algebra and geometry, elements of bookkeeping, physical geography and the elements of one other science, and those parts of the school law which have to do with the relations of teachers to pupils, parents, and school officers.

Good in the county where issued, and optional recognition in other counties of the same state. No interstate recognition of this certificate. Good for two years, and renewable for three-year periods, without examination, if the teaching continues to be satisfactory to the supervisor.

This certificate to be granted also, without examination, to the graduates of the state normal schools within the state, and to the graduates of accredited normal schools from without the state, where the normal-school training is based on a common-school education, and hence has not been preceded by a high-school training.

(In time to come this certificate should be abolished also. The first step would be to refuse to renew it without a new examination, and to limit it strictly to the county where issued. California reached the point, in 1901, where a certificate somewhat equivalent to this could be entirely abolished, and it was done.)

3. *First-grade elementary certificate.*—To be granted upon an examination on all the subjects required for the second-grade certificate, and, in addition, vocal music, drawing, general history, English and American literature, one additional science, and one other subject of high-school rank to be determined by the candidate.

This certificate not to be granted to any applicant who has not had either at least two years of successful experience as a teacher, or normal-school training as required for the certificate.

This certificate to be good in any county of the state, to be issued for five- or six-year periods, and to be renewable, without examination, so long as the holder continues to teach or to be engaged in educational work. Full interstate recognition of this certificate.

Successful teachers, holding live second-grade certificates, may, on recommendation of the supervisor, be credited with all the subjects required for a second-grade certificate, and be granted a first-grade certificate on passing a satisfactory examination on the additional subjects.

This certificate to be granted also, without examination, to the graduate of any state normal school within the

state, and to the graduates of accredited normal schools without the state, where the normal-school training has been of not less than two years' duration and based upon full four-year high-school course, or its equivalent in private institution; and also to the graduates of accredited colleges and universities who have also completed normal-school course intended for college graduates, and who intend to teach in the elementary school.

In the case of normal-school and college graduates who have not had two years of experience as a teacher, the certificate to be issued at first for two years only. If recommended as successful, then the certificate to be renewed for five- or six-year periods, as indicated above.

(In time, this should come to be the only elementary-school certificate granted, and it should be recognized between states freely as between counties within the state.)

4. *Examinations for these certificates.*—Examinations for these certificates should be given in each county, on questions uniform throughout the state, and not oftener than four times a year. Whether these examinations should be under the control of the state board of education or the county superintendent is not of fundamental importance. As soon as the number entering teaching on credentials will warrant, the examinations ought to be reduced twice a year, say December and July, and later they can be reduced to once a year, which should be in the summer. When the number taking these examinations has been reduced so that many counties have no applicants, and most of the others only a few, as is the case now in California, then the state board of education should take charge of the examinations and arrange for them to be held at a suitable time each year, and at only five or six places in the state.

II. HIGH-SCHOOL CERTIFICATES.—Good for teaching in a regular high school, six-year high school, or the seventh and eighth grades in graded city schools. May also be accepted by a county superintendent for elementary-school work in his county. This certificate to be, at first, of two grades, follows:

1. *Second-grade high-school certificate.*—To be granted on the presentation of evidence that the applicant has taught successfully at least one year, and has completed at least two years of study beyond a full high-school course in some reputable college or university, and on a written examination covering (1) oral and written English; (2) two lines of high-school work which the candidate is prepared to teach; and (3) the general theory of secondary education, the theory and methods of instruction in the two lines of work offered, and class management.

This certificate to be issued at first for two years. If the candidate is reported as a satisfactory high-school teacher, it may be renewed for three-year periods, without examination, so long as the holder continues to teach. Optional recognition between counties, but good only in "non-commissioned" high schools or "unaccredited" ones, or for grade work, as indicated or accepted.

(This certificate in the nature of a transition certificate, while the state is growing used to the idea of a separate high-school certificate. At first, it might be necessary to accept normal-school training as a substitute for the required college work, but this is inadvisable. As soon as the supply of college-trained teachers equals the demand, this certificate ought to be abandoned entirely.)

2. *Fist-grade high-school certificates.*—To be granted on the presentation of evidence of having completed a full college course in some reputable college or university, and of having made preparation to teach one or more lines of high-school work. The diploma of graduation to be accepted as evidence of general academic preparation, but the candidate must also either—
 - a) Pass a written examination on the general theory of secondary education; the purpose and methods of instruction in the subject or subjects he has prepared to teach; and class management, or
 - b) Submit a satisfactory recommendation from the faculty of the institution in which he secured his training to the effect that he has satisfactorily completed such pedagogical courses. This exemption from the peda-

gogical examination to expire after two years, unless the candidate engages in teaching or some form of educational work.

This certificate to be issued at first for two years. If the candidate is reported as a satisfactory teacher, then the certificate to be renewed for five- or six-year periods, and to be valid so long as the holder continues to teach or to be engaged in educational work. This certificate to be good in any county in the state, and to be recognized freely between states. Good in any kind of a high school.

(California has gone even farther. The number of properly certificated high-school teachers was so in excess of the demand that in 1905 the requirements were raised to include one year of graduate study.)

3. *Examinations for high-school certificates.*—No examinations to be given by which a teacher can secure a high-school certificate *wholly* on the basis of an examination. The educational prerequisite must be insisted upon. The examinations as provided for above to be given not oftener than twice a year. (Later this ought to be reduced to one examination, held in the summer.) These examinations should be under the control of the state board of education or examiners, or the state superintendent, as county boards will frequently find difficulty in examining candidates for this certificate. The questions and grading should be uniform throughout the state, the county superintendent acting for the state authorities in giving the examinations and transmitting the papers.
- III. SPECIAL CERTIFICATES.—In recognition of certain special lines of school work, a few special certificates will need to be granted.
 1. *Kindergarten certificates.*—To be granted to those who hold or secure a first-grade elementary certificate, or who present evidence showing that they are graduates of an accredited normal school, or of a four-year high school (or an equivalent private school), and who present satisfactory evidence that they have completed a kindergarten training-

course in a state normal school or in a reputable private kindergarten training-school.

Certificates granted at first for two years, and on satisfactory evidence of successful teaching to be renewable for five- to six-year periods so long as the holder continues to teach. Valid in any county of the state, and optional interstate recognition.

2. *Special certificates.*—To be granted to those who hold or secure a first-grade certificate, or who present satisfactory evidence that they are graduates of an accredited normal school, or of a four-year high school, and who, in addition, present satisfactory evidence of having made special preparation to teach the special subject or subjects for which a certificate is asked.

Such special certificates to be granted at first for two years. If the candidate is reported as a satisfactory teacher, then the certificate to be renewable for five- or six-year periods, so long as the holder continues to teach.

Special certificates shall not be issued except for music, drawing, physical training, manual training, domestic science, instruction in special schools for the deaf and blind, and commercial, industrial, and technical work.

(It is very desirable to limit special certificates rather closely, and to insist on, as nearly as possible, the standards required of regular teachers in the same kind of school work. The great danger of the specially certificated teacher is that he may represent a decidedly lower general educational level than the regular teachers of the school. Special certificates should not be granted to teach the regular studies of a high-school course, but a general high-school certificate should be insisted upon.)

- IV. **SUPERVISORY CERTIFICATES.**—These to be primarily for the encouragement and singling out of the educational leader, and to be of two grades, as follows:

1. *Second-grade supervisory certificate.*—To be granted to the graduate of any accredited normal school who has taught at least two years in the state where the certificate is issued, or to the holder of a first-grade certificate who has had at least thirty months of teaching experience, one-

half of which must have been in the state where the certificate is issued, and who, in addition, passes a satisfactory examination on educational psychology, the theory and administration of education, school hygiene, the history of the state's educational system, and the school law of the state, and who prepares a satisfactory thesis on one of a number of assigned topics. Said thesis is not expected to be "original" in its treatment, but should show grasp of the subject and power to think clearly.

Only one examination each year. This to be uniform throughout the state and under the direction of the state board of education, the state board of examiners, or the state superintendent.

This certificate to be issued for a five- or six-year period, and to be renewable, without examination, on the presentation of satisfactory evidence that the holder has been a successful principal or supervisor, so long as the holder continues to teach.

Certificates to be valid anywhere in the state, with optional interstate recognition. This certificate to be good for supervisory work or for any form of teaching for which a first-grade elementary certificate would be valid.

(This certificate is intended to recognize the successful practitioner who can give evidence that, by private study, he has kept himself abreast of the times.)

2. *First-grade supervisory certificate.*—To be granted to any teacher who has had at least two years of teaching experience, who holds a baccalaureate degree from a college requiring a four-year course, and who, in addition, either—
 - a) Submits a recommendation from the faculty of the college stating that he has completed a thorough pedagogical course of study which has included all the examination subjects required for a second-grade supervisory certificate, and, in the estimation of said faculty, is fitted to do supervisory work in the schools of the state; or
 - b) Passes the written pedagogical examination as required for a second-grade supervisory certificate. This cer-

tificate to have the same validity as the second-grade supervisory certificate, and in addition to be recognized freely between states.

- V. STATE LIFE-CERTIFICATES OR DIPLOMAS.—With the standards just given for first-grade certificates, state life-certificates become of much less importance and significance. Each of the higher grades of certificates so far given, with their general state validity and repeated renewals, is practically a life-certificate. Still, as these diplomas have a certain recognition and standing, it will be wise to continue them, though gradually raising the standards for granting them and making them stand for distinguished excellence.

These life-certificates should be of three forms, but be recognized as of somewhat equivalent rank and dignity. Each form of certificate to be for life, and to be good anywhere in the state, and for the same grade of instruction as local certificates of the same name. Such life-diplomas should be given full and complete interstate recognition.

But one examination to be given each year for these certificates. This to be given under the direction of the state superintendent or the state board of education, and at only a few places (eight to ten) in the state.

1. *State life elementary certificate.*—To be granted only to those who have taught at least fifty months, one-half of which has been in the state where the certificate is issued, and who have taught for at least two years on a first-grade elementary certificate. Adequate evidence of successful experience and professional growth must be submitted.

In addition, candidates must pass a written examination on educational psychology, the history of education, current theory, and problems of the elementary school, and prepare a short paper on some topic relating to method as applied to the elementary curriculum or to the theory of education as applied to the elementary school. A number of topics for this paper to be announced at the examination from which candidates may select.

2. *State life high-school certificates.*—To be granted only to those who have taught at least fifty months, one-half of

which has been in high-school work in the state where the certificate is issued, and who have been teaching for at least two years on a first-grade high-school certificate. Adequate evidence of successful experience and professional growth must be submitted.

In addition, candidates must pass a written examination on the history and theory of secondary education, present problems of secondary education (comparative as well as local), and prepare a paper of some length on one of a number of topics to be assigned at the time of the examination, covering some point in the method and purpose of instruction of some subject taught in the secondary school, or the general theory of secondary education.

3. *State life supervisory certificate.*—To be granted only to those who have taught at least fifty months, at least one-half of which has been as a principal or supervisor and on first- or second-grade supervisory certificate in the state where the certificate is issued. Adequate evidence of successful experience as a supervisor and of professional growth must be submitted.

In addition, candidates must pass a written examination on the history of education, the theory (or philosophy) of education, principles of city and state school administration, education in the leading European states as compared with America (general principles, based on assigned reading), and must prepare a paper of some length on one of a number of topics, submitted at the time of the examination, and covering some point in the administration or the theory of education.

B. CERTAIN FEATURES OF THE PLAN

1. No city certificates to be issued, except perhaps in a few of our very largest cities. Cities must accept the state certificates, so far as they go, but are at liberty to refuse to employ those not holding first-grade certificates; and those not having had a certain degree of education, professional training, and teaching experience; and to subject those who meet these standards to a further professional and competitive test.

2. No temporary or special certificates to be issued except to those whose credentials would insure them a regular certificate, without examination, at the next meeting of the board of examiners or the county board of education.
3. No state professional certificates as distinguished from life diplomas, as the standards set for the first-grade certificate and their general state validity make a state professional certificate unnecessary.
4. Gradual separation and erection of a high-school certificate, based on education and training, and with no method of securing it *wholly* on examination.
5. Definite provision for the development of the educated leader as opposed to the successful practitioner.
6. Gradual curtailment of special and temporary certificates, and the insistence, as fast as possible, that the educational standard for these shall be somewhat equivalent to that demanded for regular certificates of equivalent grade.
7. Gradual curtailment of the number of examinations given for all grades of certificates, with a view to emphasizing training and education.
8. Abolition of all fees for examinations, certificates, or renewals. Evidence as to good moral character to be required for all forms of certificate.
9. Freeing the successful teacher from the necessity of continual re-examinations, so long as he (or she) continues to teach in a satisfactory manner, but limiting him in the matter of movement and availability for the best positions unless he obtains a high grade of certificate.
10. Close association of the supervisory and certifying functions, thus making reports as to a teacher's efficiency of some real value.
11. Providing for the renewal of certificates, after the probationary period has been passed, rather than granting full life-certification on any standard lower than that required for a state life-certificate. Under an adequate system of supervision the renewal could be made of educational significance. There would be no serious objection, however, to making a first-grade certificate a permanent county

- certificate, after the second renewal, valid so long as the holder continues to teach in the county.
12. The full recognition of normal-school and college diplomas, though at first for only temporary two-year certificates. After evidence of successful experience, these to guarantee the holder a long-time renewable certificate of general validity, which is practically a life-certificate.
 13. The recognition of normal-school and college diplomas of equal rank from other states, and on the same basis as similar local documents.
 14. As fast as can be done, our state normal schools should pass from an elementary-school to a high-school basis of admission, and then concentrate their efforts on giving two years of high-grade academic and professional training. This has already been accomplished in a few states and should be extended as rapidly as possible to all. The graduates of such schools would then receive first-grade certificates without examination.
 15. Full inter-county and interstate recognition, for teachers of experience, of all regular first-grade certificates.
 16. Recognition of equivalents and options in examinations, and in measuring the value of certificates from other states.

If some such plan for the certification of teachers were adopted generally by our leading states, it would be a most potent factor in the elevation and improvement of the schools of the entire country. The effect of such standards in California has been most beneficial from every point of view. Each increase of standards has been accompanied by certain "growing pains," but the result has soon demonstrated the wisdom of the action. Such doubtless will be the case elsewhere. A movement looking toward the general adoption of some such standards ought to be urged in our various state teachers' associations, and might well enlist the active efforts of our National Educational Association as well. It would be a cause worthy of their steel.

DISCUSSION¹

A REVIEW OF GEORGE P. BROWN'S "TEACHING OF ENGLISH," IN THE "FIFTH
YEARBOOK" PART I

JOHN A. H. KEITH
Normal, Ill.

It is somewhat difficult to write a critical review of a paper in which the author expressly states (pp. 10, 11) that his discussion is not addressed to those who object to "confounding metaphysics with psychology;" in which one who enters any such objection is at once classified with those who "crucified, in fact or in spirit, Galileo, Copernicus, Luther, Socrates, Darwin, Jesus of Nazareth." And it is still more difficult to write a criticism when one esteems highly the author of the paper and recognizes the great worth of his services to the cause in which both author and critic are engaged. Yet it seems necessary, in this case, to record a protest against certain aspects of Mr. Brown's paper.

I

The fundamental idea in Mr. Brown's paper is that no one can be as efficient as a teacher ought to be unless he has a "view of the world" (pp. 5, 15, 61). In the ordinary meaning of this phrase, everybody has "a view of the world," even very young children. This fact is explicable in terms of the tendency of the mind (partly conscious and partly unconscious) to combine its experiences into some sort of unity, to bring everything known into relation. This tendency is the germ of philosophy, but it is not philosophy any more than a child's cooing and kicking are singing and walking. Mr. Brown takes it for granted that "a view of the world" is the same as a completely elaborated system of philosophy. His whole treatment implies that the teaching of English (and of other subjects?) can be of no avail unless every step of it proceeds from a philosophy to which the secrets of star-dust are as open as is the falling of leaves to the ordinary man.

We are asked by Mr. Brown to think of the universe as "a process composed of an infinite number of processes" (p. 5). These processes seem to be reducible to Source, Separation, and Return (p. 8). It is easy to think of vapor rising from the ocean, falling upon the earth, and returning to the ocean; and easy, also, to name these stages as above. But one might just as

¹ Requested by the Editor.

easily start with clouds as the Source and complete the cycle back to cloud again, so that what we called Source is simply the point of departure in our own thinking. When, however, the author says, "The solar system rises from star-dust and is to pass on into star-dust again," it is not so easy to follow. But, granting for the sake of argument that this is another case of Source, Separation, and Return, the cycle will have to keep repeating itself in order to be a *process* at all. This isn't much of an explanation of the universe after all, for it simply says that the cycle will never cease—without explaining anything.

But beyond this first "cycle interpretation" is another, viz., "the Absolute Cycle, from which all minor processes spring, is the Absolute Ego or Person" (p. 9). This is nothing more than the assertion that a dynamic God is the center, circumference, and area of all that is. All this may be assented to, but what of it? One is simply back to the conception of all that has been, is, and is to be as proceeding from a Source that is not different from the Separation and Return before mentioned. To this conception regarded as a matter of faith there is and can be no objection. As a preliminary postulate for philosophizing about the origin and destiny of the world, there is no objection to it—if the one who makes it enjoys it. But to call this conception "scientific" is to lapse mentally into an inability to distinguish between that which is verifiable and that which is simply postulated. It is true that scientists make use of hypotheses, but it does not follow that all hypotheses made or believed by scientists are verifiable. The "power of correct prophecy is the test of scientific knowledge and . . . verifiability by any competent observer is its diagnostic symptom."² Iteration, even with solemn emphasis and full belief, is not proof; hence, the repetition by Mr. Brown of this notion of the Absolute Cycle really weakens his argument.

Still more startling is the "fact" which Mr. Brown infers by "what seems (to him?) to be a scientific procedure," that "the human soul is the active agency by which the cycle of the universe is to be finally completed." This bald and incomprehensible statement is prepared for by the assertion that this inference follows "from the acknowledged facts above set forth" (p. 9). It seems to me that the facts to which he refers (Absolute Cycle, minor processes, Source, Separation, Return, etc., with their metaphysical implications) are neither "facts" nor "acknowledged." Mr. Brown realizes that few people appreciate the fact that they are "the active agency by which the cycle of the universe is to be finally completed;" and so, in order to make the "fact" still more obvious (?), he says: "God, the world, and man are all one psychical process, no arc of which is any more illusion than

² E. L. Thorndike, *Fifth Yearbook*, p. 81; read also p. 82.

any other" (p. 9). In this unity everything finds its matrix; in this psychical process all distinctions are dissolved. To quote (p. 10): "We repeat that the Absolute Psyche is identical with the limited psyche, in some degree, in every object of nature and in every human soul." In this quotation we are again given repetition instead of proof.

Philosophy, even of the speculative sort, has a value for human life. It is the outcome of reflection, experience, and the fundamental tendency to form "a view of the world." However valuable and inevitable this philosophic activity may be in our species, it does not follow that its outcome, in the child or in the adult, is scientific. Therefore, it seems to me that in his "point of view" (pp. 5-11) Mr. Brown has confused the vague, impressionistic "view of the world" which most people have with "philosophy" in the more technical sense of an "explanation of the world-problem," and also confused "philosophic," in the latter sense, with "scientific." This confusion of terms not only obscures the view itself, but also provokes doubt of its validity. It may be that Mr. Brown's argument is so deep that we who have not been chastened by the acceptance of animism or pantheism as fundamental truths are unable to follow it, because the scales have not fallen from our eyes. Or, it may be, there are "errors of refraction" in the mental make-up of all of us.

II

The "point of view" which identifies God, the world, and man "as one psychical process" prepares the way for Mr. Brown's "genetic psychology." The "one psychical process" in the form of instinct (life within?) leads each individual to a "series of psychical changes which repeat the psychical changes in the growth of the race." Feeling, memory, imitation, imagination, love of power, etc., are the outflow of the "Absolute Psyche." It is difficult to accept this idea and reconcile it with the further idea (pp. 12, 15) that there are negative tendencies toward degeneration. If it be true that the Absolute Psyche repeats itself in everything that is, then how can we explain these downward tendencies? We must not think of them as extraneous to the absolute. We are forced, then, to think of an Absolute that has to degenerate in order that it may develop, or to think that degeneration and development are the same to the absolute. The "genetic idea" to which this leads is that "all is well."

Mr. Brown practically commits himself to "an evolution which is directed by a purpose," and assures us that this is not a "new view to the modern scientist." My acquaintance with the writings of Huxley, Darwin, and Spencer—three modern scientists—has never hinted to me that these men accepted, as basic truth, the conception of an evolution which is directed by a purpose, except as the progress of man is regarded as evolution. To

admit an evolution with an advantageous outcome in some cases and a disadvantageous outcome in other cases is to deny that a purpose is back of all evolution, or is to admit that degeneration and development are the same in meaning. To regard the movements of wind-driven, withered leaves as comparable to the movements of a man in building a house is hopelessly to confuse the term "purpose." To say that the disintegration of exposed sand stone and the painting of a picture are guided by purpose is to befuddle thinking. This may be allowable as a case of "poetic license," but it cannot pass current for scientific thinking. And while we may be entertained by the bold speculations of scientists and philosophers, we must stick to the verifiability of theories as a test of their scientific character.

Mr. Brown's confusion of the speculative with the scientific leads him to assert that memory "has ever been present on the evolutionary journey from star-dust to child, being the force of gravity which holds the universe together and becoming conscious first as feeling" (p. 13). Reduced to syllogistic form the argument is:

Gravity holds things together.

Memory holds things together.

Therefore, memory and gravity are basally one.

The fallacy of such a syllogism is too evident to require any comment.

There is a genetic psychology, but it is not at all evident that the "Absolute Psyche" in its "minor processes," as set forth by Mr. Brown, is a scientific explanation of developing mind; for it seems that the character of the stimuli brought to bear upon the child brings about, through the child's reactions, not only a direction of growth, but also, by modifying the child's mind, brings into existence an organization of mind that would otherwise not have been.

The fundamental objections to Mr. Brown's genetic psychology are (1) that by charging it all to the nature of the Absolute Psyche he cannot explain the dualism involved in his use of the terms "degeneration" and "development," and (2) that, therefore, the formative influence of experience of different types is practically ignored.

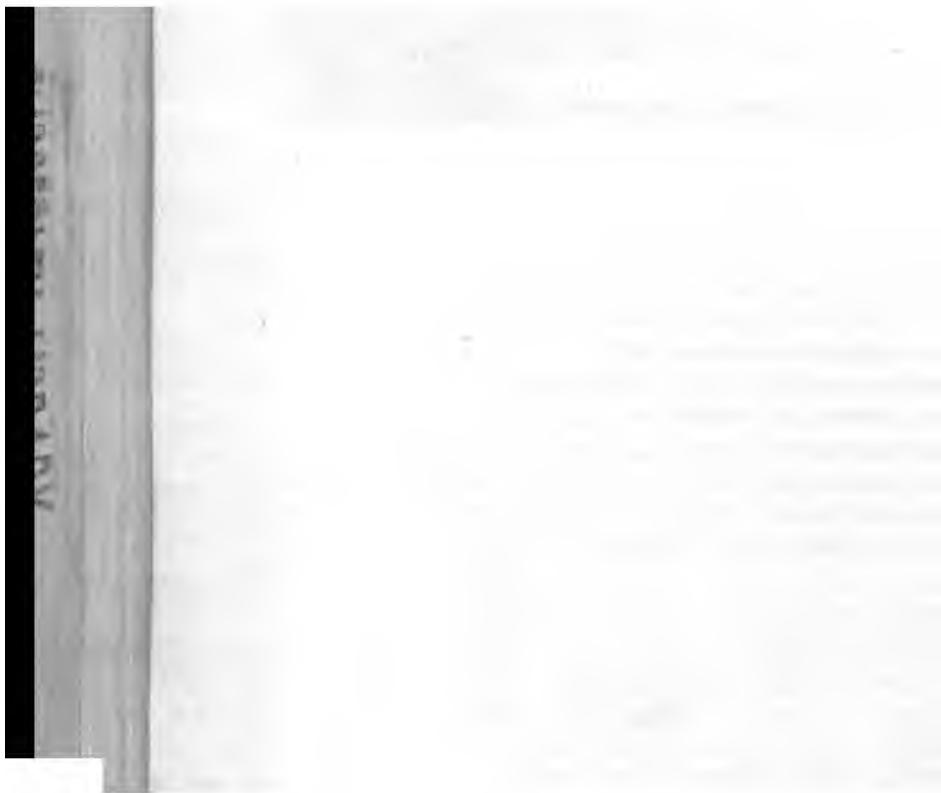
III

How Mr. Brown's bold speculations connect with his analysis of method of teaching English in the schools is as difficult to comprehend as is his metaphysics. When he says, "The prevailing conscious attitude of the pupil in every grade must be a desire to attain an end. The primary function of the school is to supply the environment that will awaken the desire" (p. 63), we not only agree, we applaud. We are relieved to discover that we can comprehend this truth without pretending to know anything about "star-

dust" or the "Absolute Psyche." We are pained to find no reference to the social environment as a factor in the growth of language and in the awakening of desire in the child. We can even agree with what is said about grammar (pp. 64, 65), if we can do so without committing ourselves to the view that by judgment "the instinctive soul of the world comes into consciousness of itself" (p. 6).

A scientific method is usually inductive; i. e., it proceeds from known facts to their underlying principles. Mr. Brown reverses the process, and is therefore essentially deductive in his entire argument. He fails to show how his "point of view" works out into plans for teaching English in the schools. The metaphysics and pedagogy are as unlike and as unrelated as if they had been written by different men—one a speculative soul with poetic instincts, and the other a hard-headed, successful teacher who had learned by experience. Had Mr. Brown given us his pedagogy of teaching English first, and then showed us how this pedagogy involved the particular modification of the philosophy of Plotinus which he accepts, more of us might have followed him, and all of us would have recognized the scientific method.

The great element of variability in all speculative solutions of the world-problem renders metaphysics a shifting sand, rather than a solid rock upon which to build a body of educational principles. If we must understand the genesis and destiny of all that is before we can do anything that is worth while, the actual workers in the educational field would better quit.



963

(

6 963
963

CUBBERLEY LIBRARY



—

UNIVERSITY LIBRARIES - STANFORD UNIVERSITY

370.6

STANFORD UNIVERSITY LIBRARIES - STANFORD UNI

Series

VERSITY LIBRARIES - STANFORD UNIVERSITY

Cop. 1

ARIES - STANFORD UNIVERSITY LIBRARIES

LIBRARIES - STANFORD UNIVERSITY LIBRARIES

- STANFORD UNIVERSITY LIBRARIES - STANFORD

UNIVERSITY LIBRARIES - STANFORD UNIVERSITY

NFORD UNIVERSITY LIBRARIES - STANFORD UNI

VERSITY LIBRARIES - STANFORD UNIVERSITY LI

ARIES - STANFORD UNIVERSITY LIBRARIES - ST

LIBRARIES - STANFORD UNIVERSITY LIBRARIES

STANFORD UNIVERSITY LIBRARIES - STANFORD